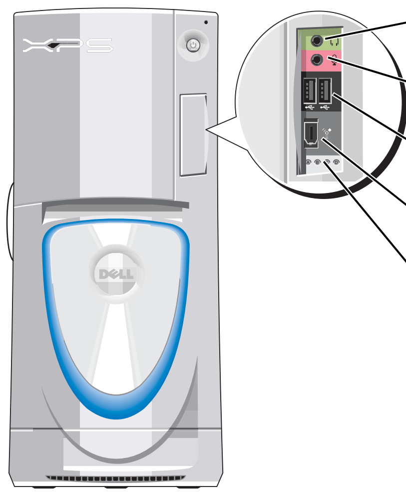
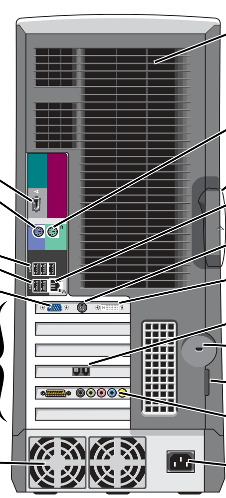
Dell™ Dimension™ XPS





*Not present on certain computers.

Model WHL

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

If you purchased a Dell™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

Model WHL

March 2005 P/N D8659 Rev. A00

Contents

2 Optimizing Performance

3 Solving Problems

4 Advanced Troubleshooting

5 Removing and Installing Parts

Finding Information

NOTE: Some features may not be available for your computer or in certain countries.

NOTE: Additional information may ship with your computer.

What Are You Looking For?	Find it Here
• A diagnostic program for my computer • Drivers for my computer • My computer documentation • My device documentation	**ResourceCD** Documentation and drivers are already installed on your computer. You can use the CD to reinstall drivers (see page 61), run the Dell Diagnostics (see page 58), or access your documentation.  Readme files may be included on your CD to provide last-minute updates about technical changes to your computer or advanced technical-reference material for technicians or experienced users. **NOTE:** Drivers and documentation updates can be found at **support.dell.com**.
• Additional information about setting up my computer • How to troubleshoot and solve problems • How to remove and install parts • Technical specifications • How to contact Dell	**Dimension Owner's Manual**  **NOTE:** This document is available as a PDF at **support.dell.com**.

What Are You Looking For?	Find it Here
• Warranty information • Terms and Conditions (U.S. only) • Safety instructions • Regulatory information • Ergonomics information • End User License Agreement	**Dell™ Product Information Guide** 
• How to set up my computer	**Setup Diagram** 
• Service Tag and Express Service Code • Microsoft Windows License Label	**Service Tag and Microsoft Windows License** These labels are located on your computer.  • Use the Service Tag to identify your computer when you use **support.dell.com** or contact technical support. • Enter the Express Service Code to direct your call when contacting technical support.

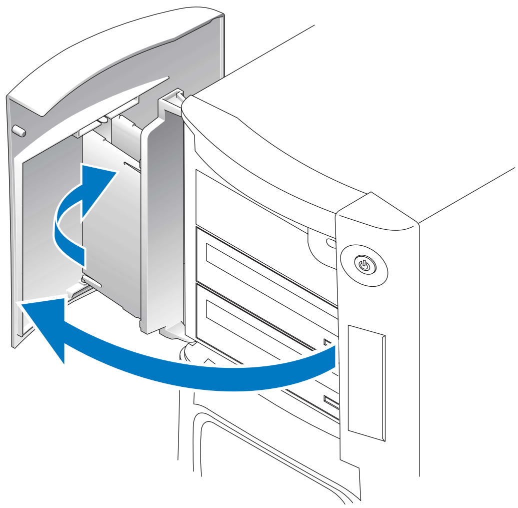
What Are You Looking For?	Find it Here
• Solutions — Troubleshooting hints and tips, articles from technicians, and online courses, frequently asked questions • Community — Online discussion with other Dell customers • Upgrades — Upgrade information for components, such as memory, the hard drive, and the operating system • Customer Care — Contact information, service call and order status, warranty, and repair information • Service and support — Service call status and support history, service contract, online discussions with technical support • Reference — Computer documentation, details on my computer configuration, product specifications, and white papers • Downloads — Certified rivers, patches, and software updates • Desktop System Software (DSS) — If you reinstall the operating system for your computer, you should also reinstall the DSS utility. DSS provides critical updates for your operating system and support for Dell™ 3.5-inch USB floppy drives, Intel® Pentium® M processors, optical drives, and USB devices. DSS is necessary for correct operation of your Dell computer. The software automatically detects your computer and operating system and installs the updates appropriate for your configuration.	**Dell Support Website — support.dell.com** **NOTE:** Select your region to view the appropriate support site. **NOTE:** Corporate, government, and education customers can also use the customized Dell Premier Support website at **premier.support. dell.com**.
• How to use Windows XP	**Windows Help and Support Center** 1 Click the **Start** button and click **Help and Support**. 2 Type a word or phrase that describes your problem and click the arrow icon. 3 Click the topic that describes your problem. 4 Follow the instructions on the screen.

What Are You Looking For?	Find it Here
• How to reinstall my operating system	**Operating System CD** The operating system is already installed on your computer. To reinstall your operating system, use the *Operating System* CD. See "Reinstalling Microsoft® Windows® XP" on page 64.  After you reinstall your operating system, use the ResourceCD to reinstall drivers for the devices that came with your computer. **NOTE:** The color of your CD varies based on the operating system you ordered.

1

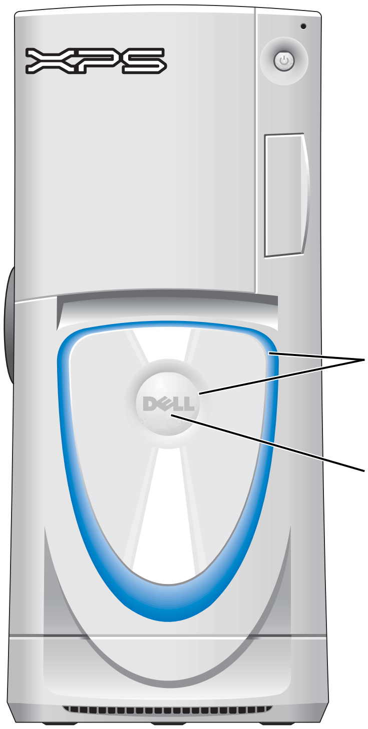
Setting Up and Using Your Computer

Opening the Drive Door



Changing the Front-Panel Light Color

You can use this exclusive Dell™ Dimension™ XPS feature either to change the color of the front-panel light that illuminates the Dell name and displays around the badge on the front of your computer, or to turn off the front-panel light entirely.



You can choose from several color choices:

- Off
- Ruby
- Emerald
- Sapphire (default)
- Amber
- Amethyst
- Topaz
- Diamond

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: The front-panel light is not for diagnostic purposes.

1 Follow the procedures in "Before You Begin" on page 69.

2 Turn on (or restart) your computer.

3 Enter system setup by pressing <F2>. (See page 128 for details about entering system setup).

4 Select the **Onboard Devices** option.

5 Select **Front LED Color**, and press <Enter>.

6 Press the left- and right- arrow keys to scroll through the color options. The front-panel light color changes as you scroll through the options.

7 Select the color you want, and press <Enter>.

8 Press <Esc>, and press **Save and Exit** to save the new front-panel light color setting.

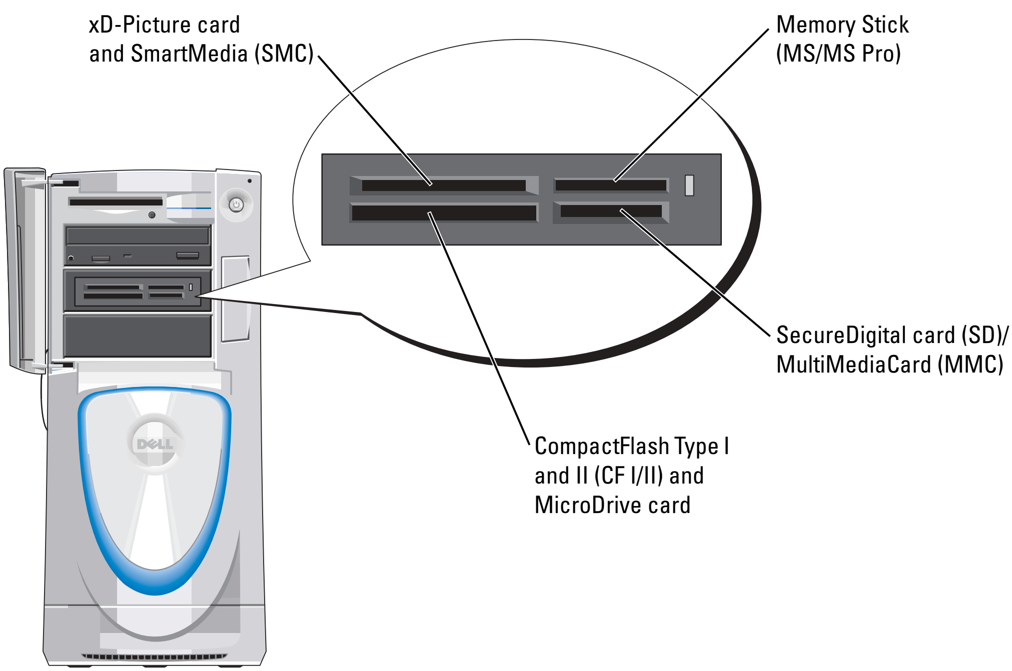
Using a Media Card Reader (Optional)

Use the media card reader to transfer data directly to your computer.

The media card reader supports the following memory types:

- xD-Picture card
- SmartMedia (SMC)
- CompactFlash Type I and II (CF I/II)
- MicroDrive card
- SecureDigital card (SD)
- MultiMediaCard (MMC)
- Memory Stick (MS/MS Pro)

For information on installing a media card reader, see "Installing a Media Card Reader" on page 104.



To use the media card reader:

1 Check the media or card to determine the proper orientation for insertion.

2 Slide the media or card into the appropriate slot until it is completely seated in the connector.

If you encounter resistance, do not force the media or card. Check the card orientation and try again.

Connecting Two Monitors

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: If you are connecting two monitors that have VGA connectors, you must have the optional DVI adapter. If you are connecting two flat-panel monitors, at least one of them must have a VGA connector. If you are connecting a TV, you may connect only one monitor (VGA or DVI) in addition to the TV.

NOTE: See the documentation that came with your TV to ensure that you properly configure and connect the TV.

If you purchased a graphics card that supports dual monitors, follow these instructions to connect and enable your monitors. The instructions tell you how to connect either two monitors (each with a VGA connector), one monitor with a VGA connector and one monitor with a DVI connector, or a TV.

If you purchased a graphics card that has two DVI ports instead of a VGA port, use a DVI-to-VGA adapter to use a VGA monitor.

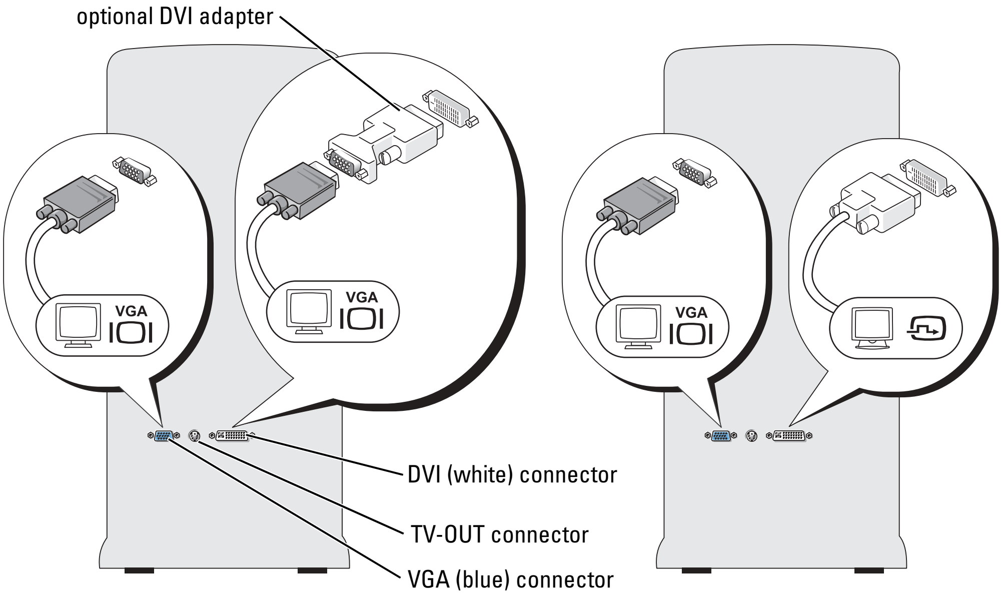
Connecting Two Monitors With VGA Connectors

1 Follow the procedures in "Before You Begin" on page 69.

2 Connect one of the monitors to the VGA (blue) connector on the back of the computer.

3 Connect the other monitor to the optional DVI adapter and connect the DVI adapter to the DVI (white) connector on the back of the computer.

NOTE: Your graphics card must support a VGA monitor being connected to the DVI connector.



Connecting One Monitor With a VGA Connector and One Monitor With a DVI Connector

1 Follow the procedures in "Before You Begin" on page 69.

2 Connect the VGA connector on the monitor to the VGA (blue) connector on the back of the computer.

3 Connect the DVI connector on the other monitor to the DVI (white) connector on the back of the computer.

Connecting a TV

NOTE: To connect a TV to your computer, you must purchase an S-video cable, which is available at most consumer electronics stores. An S-video cable is not included with your computer.

1 Follow the procedures in "Before You Begin" on page 69.

2 Connect one end of the S-video cable to the TV-OUT connector on the back of the computer.

3 Connect the other end of the S-video cable to the S-video input connector on your TV.

4 Connect the VGA or DVI monitor as described in the preceding subsection, "Connecting One Monitor With a VGA Connector and One Monitor With a DVI Connector."

Changing the Display Settings

1. After you connect the monitor(s) or TV, turn on the computer.

   The Microsoft® Windows® desktop displays on the primary monitor.

2. Enable clone mode or extended desktop mode in the display settings.

   - In clone mode, both monitors display the same image.
   - In extended desktop mode, you can drag objects from one screen to the other, effectively doubling the amount of viewable work space.

   For information on changing the display settings for your graphics card, see the user's guide in the Help and Support Center (click the **Start** button, click **Help and Support**, click **User and system guides**, click **Device guides**, and then click the guide for your graphics card).

About Serial ATA Drives

Your computer supports up to three serial ATA hard drives. Serial ATA drives provide the following benefits by transferring data using serial technology and flexible cables that are thinner and longer than IDE cables:

- Improved cable routing facilitates more efficient airflow inside the chassis.
- Compact cable connectors save space on the system board and on the hard drive. Combined with the improved cable routing, this allows a more efficient utilization of space inside the chassis.

See "Hard Drive" on page 94 for information on serial ATA drive connections.

About Your RAID Configuration

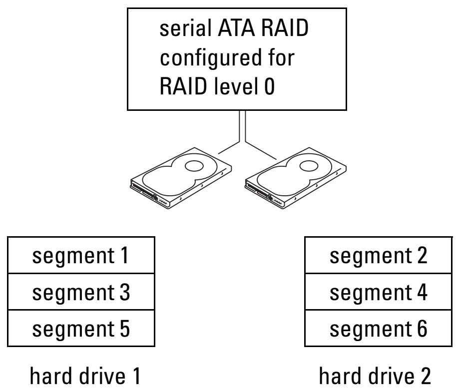
This section provides an overview of the RAID configuration that you might have selected when you purchased your computer. Although several RAID configurations are available, Dell offers either a RAID level 0 configuration or a RAID level 1 configuration for its Dimension™ computers. A RAID level 0 configuration is recommended for high-performance gaming, and a RAID level 1 configuration is recommended for the data integrity requirements of digital photography and audio.

The Intel® RAID controller on your computer can only create a RAID level 0 configuration using two or three physical drives. If a third drive is present, then that drive can be made part of a RAID level 0 configuration using the Intel RAID configuration program, or it can be used as a spare drive in a RAID level 1 configuration (see "Creating a Spare Hard Drive" on page 26). The drives should be the same size in order to ensure that the larger drive does not contain unallocated (and therefore unusable) space.

NOTE: RAID levels do not represent a hierarchy. A RAID level 1 configuration is not inherently better or worse than a RAID level 0 configuration.

RAID Level 0 Configuration

A RAID level 0 configuration uses a storage technique known as "data striping" to provide a high data access rate. Data striping is a method of writing consecutive segments, or stripes, of data sequentially across the physical drives to create a large virtual drive. Data striping allows one of the drives to read data while the other drive is searching for and reading the next block.

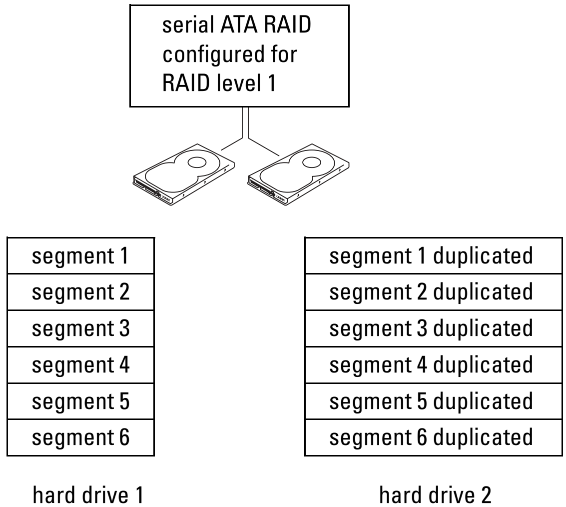


Another advantage of a RAID level 0 configuration is that it utilizes the full capacities of the drives. For example, if you have two 120-GB drives installed, you have 240 GB on which to store data.

NOTICE: Because RAID level 0 configurations provide no data redundancy, if one drive fails, then the data on the other drive is also inaccessible. Therefore, ensure that you perform regular backups when you use a RAID level 0 configuration.

RAID Level 1 Configuration

RAID level 1 uses a data-redundancy storage technique known as "mirroring." When data is written to the primary drive, it is then duplicated, or mirrored, on the other drive. A RAID level 1 configuration sacrifices high data-access rates for its data redundancy advantages.



If a drive failure occurs, subsequent read and write operations are directed to the surviving drive. A replacement drive can then be rebuilt using the data from the surviving drive. Also, because data is duplicated on both drives, a RAID level 1 configuration using two 120-GB hard drives collectively has a maximum of 120 GB on which to store data.

Configuring Your Computer for RAID

At some point you may want to configure your computer for RAID if you did not select a RAID configuration when you purchased your computer. You must have at least two hard drives installed in your computer to set up a RAID configuration. For instructions on how to install a hard drive, see page 95.

You can use one of two methods to configure RAID hard drive volumes. One method uses the Intel® RAID Option ROM utility and is performed *before* you install the operating system onto the hard drive. The second method uses the Intel Matrix Storage Manager, or Intel Matrix Storage Console, and this method is performed *after* you have installed the operating system and the Intel Matrix Storage Console. Both methods require that you set your computer to RAID-enabled mode before starting any of the RAID configuration procedures in this document.

Setting Your Computer to RAID-Enabled Mode

1. Enter system setup (see page 128).
2. Press the up- and down-arrow keys to highlight **Drives**, and press <Enter>.
3. Press the up- and down-arrow keys to highlight **SATA Operation**, and press <Enter>.

4 Press the left- and right-arrow keys to highlight **RAID On**, press <Enter>, and then press <Esc>.

NOTE: For more information about RAID options, see "System Setup Options" on page 129.

5 Press the left- and right-arrow keys to highlight **Save/Exit**, and press <Enter> to exit system setup and resume the boot process.

Configuring for RAID Using the Intel® RAID Option ROM Utility

NOTE: Although any size drives may be used to create a RAID configuration using the Intel RAID Option ROM utility, ideally the drives should be of equal size. In a RAID level 0 configuration, the size of the configuration will be the size of the smallest drive multiplied by the number (two) of drives in the configuration. In a RAID level 1 configuration, the size of the configuration will be the smaller of the two drives used.

Creating a RAID Level 0 Configuration

NOTICE: You will lose any data on your hard drives when you create a RAID configuration using the following procedure. Back up data you want to keep before continuing.

NOTE: Use the following procedure only if you are reinstalling your operating system. Do not use the following procedure to migrate an existing storage configuration to RAID level 0 configuration.

1 Set your computer to RAID-enabled mode (see page 20).

2 Press <Ctrl><i> when you are prompted to enter the Intel® RAID Option ROM utility.

3 Press the up- and down-arrow keys to highlight **Create RAID Volume**, and press <Enter>.

4 Enter a RAID volume name or accept the default, and press <Enter>.

5 Press the up- and down-arrow keys to select **RAID0(Stripe)**, and press <Enter>.

6 If there are more than two hard drives available, press the up- and down-arrow keys and spacebar to select the two or three drives you want to use to make up your configuration, and then press <Enter>.

NOTE: Select the strip size closest to the size of the average file you want to store on the RAID volume. If you do not know the average file size, choose 128 KB as your strip size.

7 Press the up- and down-arrow keys to change the strip size, and press <Enter>.

8 Select the desired capacity for the volume, and press <Enter>. The default value is the maximum available size.

9 Press <Enter> to create the volume.

10 Press <y> to confirm that you want to create the RAID volume.

11 Confirm that the correct volume configuration is displayed on the main Intel® RAID Option ROM utility screen.

12 Press the up- and down-arrow keys to select **Exit**, and press <Enter>.

13 Install the operating system (see "Reinstalling Microsoft® Windows® XP" on page 64).

Creating a RAID Level 1 Configuration

1. Set your computer to RAID-enabled mode (see page 20).
2. Press <Ctrl><i> when you are prompted to enter the Intel RAID Option ROM utility.
3. Use the up- and down-arrow keys to highlight **Create RAID Volume**, and press <Enter>.
4. Enter a RAID volume name or accept the default, and press <Enter>.
5. Use the up- and down-arrow keys to select **RAID1(Mirror)**, and press <Enter>.
6. If there are more than two hard drives available, press the up- and down-arrow keys and spacebar to select the two drives you want to use to make up your volume, and then press <Enter>.
7. Select the desired capacity for the volume, and press <Enter>. The default value is the maximum available size.
8. Press <Enter> to create the volume.
9. Press <y> to confirm that you want to create the RAID volume.
10. Confirm that the correct volume configuration is displayed on the main Intel RAID Option ROM utility screen.
11. Use the up- and down-arrow keys to select **Exit**, and press <Enter>.
12. Install the operating system (see "Reinstalling Microsoft® Windows® XP" on page 64).

Deleting a RAID Volume

NOTE: When you perform this operation, all data on the RAID drives will be lost.

NOTE: If your computer currently boots to RAID and you delete the RAID volume in the Intel RAID Option ROM utility, your computer will become unbootable.

1. Press <Ctrl><i> when you are prompted to enter the Intel RAID Option ROM utility.
2. Use the up- and down-arrow keys to highlight **Delete RAID Volume**, and press <Enter>.
3. Use the up- and down-arrow keys to highlight the RAID volume you want to delete, and press <Delete>.
4. Press <y> to confirm the deletion of the RAID volume.
5. Press <Esc> to exit the Intel RAID Option ROM utility.

Configuring for RAID Using the Intel® Application Accelerator

If you already have one hard drive with the operating system installed on it, and you want to add a second hard drive and reconfigure both drives into a RAID volume without losing the existing operating system and any data, you need to use the migrating option (see "Migrating to a RAID Level 0 Configuration" on page 24 or "Migrating to a RAID Level 1 Configuration" on page 25). Create a RAID level 0 volume or RAID level 1 volume only when:

- You are adding two new drives to an existing single-drive computer (and the operating system is on the single drive), and you want to configure the two new drives into a RAID volume.
- You already have a two-hard drive computer configured into a volume, but you still have some space left on the volume that you want to designate as a second RAID volume.

Creating a RAID Level 0 Configuration

NOTE: When you perform this operation, all data on the RAID drives will be lost.

1. Set your computer to RAID-enabled mode (see page 20).
2. Click **Start** and point to **Programs**→ **Intel(R) Application Accelerator**→ **Intel Matrix Storage Manager** to launch the Intel® Storage Utility.

NOTE: If you do not see an **Actions** menu option, you have not yet set your computer to RAID-enabled mode (see page 20).

3. On the **Actions** menu, select **Create RAID Volume** to launch the Create RAID Volume Wizard, and then click **Next**.
4. On the **Select Volume Location** screen, click the first hard drive you want to include in your RAID level 0 volume, and then click the right arrow.
5. Click a second hard drive. To add a third hard drive in your RAID level 0 volume, click the right arrow and click on the third drive until three drives appear in the **Selected** window, and then click **Next**.
6. In the **Specify Volume Size** window, click the **Volume Size** desired, and then click **Next**.
7. Click **Finish** to create the volume, or click **Back** to make changes.

Creating a RAID Level 1 Configuration

NOTE: When you perform this operation, all data on the RAID drives will be lost.

1. Set your computer to RAID-enabled mode (see page 20).
2. Click the **Start** button and point to **Programs**→ **Intel(R) Application Accelerator**→ **Intel Matrix Storage Manager** to launch the Intel® Storage Utility.

NOTE: If you do not see an **Actions** menu option, you have not yet set your computer to RAID-enabled mode (see page 20).

3. On the **Actions** menu, select **Create RAID Volume** to launch the Create RAID Volume Wizard.

4 Click **Next** at the first screen.

5 Confirm the volume name, select **RAID 1** as the RAID level, and then click **Next** to continue.

6 On the **Select Volume Location** screen, click the first hard drive you want to use to create your RAID level 0 volume, and then click the right arrow. Click a second hard drive until two drives appear in the **Selected** window, and then click **Next**.

7 In the **Specify Volume Size** window, select the **Volume Size** desired and click **Next**.

8 Click **Finish** to create the volume, or click **Back** to make changes.

9 Follow Microsoft Windows procedures for creating a partition on the new RAID volume.

Deleting a RAID Volume

NOTE: While this procedure deletes the RAID 1 volume, it also splits the RAID 1 volume into two non-RAID hard drives with a partition, and leaves any existing data files intact. Deleting a RAID 0 volume, however, destroys all data on the volume.

1 Click the **Start** button and point to **Programs**→ **Intel(R) Application Accelerator**→ **Intel Matrix Storage Manager** to launch the Intel® Storage Utility.

2 Right-click the **Volume** icon of the RAID volume you want to delete, and select **Delete Volume**.

3 On the **Delete RAID Volume Wizard** screen, click **Next**.

4 Highlight the RAID volume you want to delete in the **Available** box, click the right-arrow button to move the highlighted RAID volume into the **Selected** box, and then click **Next**.

5 Click **Finish** to delete the volume.

Migrating to a RAID Level 0 Configuration

1 Set your computer to RAID-enabled mode (see page 20).

2 Click the **Start** button and point to **All Programs**→ **Intel(R) Application Accelerator**→ **Intel Matrix Storage Manager** to launch the Intel® Storage Utility.

NOTE: If you do not see an **Actions** menu option, you have not yet set your computer to RAID-enabled mode (see page 20).

3 On the **Actions** menu, select **Create RAID Volume From Existing Hard Drive** to launch the Migration Wizard.

4 Click **Next** on the Migration Wizard screen.

5 Enter a RAID volume name or accept the default.

6 From the drop-down box, select **RAID 0** as the RAID level.

NOTE: Select the strip size closest to the size of the average file you want to store on the RAID volume. If you do not know the average file size, choose 128 KB as your strip size.

7 Select the appropriate strip size from the drop-down box, and then click **Next**.

NOTE: Select the hard drive that you want to use as your source hard drive (it should be the hard drive containing the data or operating system files that you want to keep on the RAID volume).

8 On the **Select Source Hard Drive** screen, double-click the hard drive from which you want to migrate, and click **Next**.

9 On the **Select Member Hard Drive** screen, double-click the hard drive(s) to select the member drive(s) to span the stripe array, and click **Next**.

10 On the **Specify Volume Size** screen, select the **Volume Size** you want, and click **Next**.

NOTE: In the following step, you will lose all data contained on the member drive.

11 Click **Finish** to start migrating, or click **Back** to make changes. You can use your computer normally during the migration process.

Migrating to a RAID Level 1 Configuration

1 Set your computer to RAID-enabled mode (see page 20).

2 Click the **Start** button and point to **All Programs→ Intel(R) Application Accelerator→ Intel Matrix Storage Manager** to launch the Intel® Storage Utility.

NOTE: If you do not see an **Actions** menu option, you have not yet set your computer to RAID-enabled mode (see page 20).

3 On the **Actions** menu, click **Create RAID Volume From Existing Hard Drive** to launch the Migration Wizard.

4 Click **Next** on the first Migration Wizard screen.

5 Enter a RAID volume name or accept the default.

6 From the drop-down box, select **RAID 1** as the RAID level.

NOTE: Select the hard drive that you want to use as your source hard drive (it should be the hard drive containing the data or operating system files that you want to keep on the RAID volume).

7 On the **Select Source Hard Drive** screen, double-click the hard drive from which you want to migrate, and click **Next**.

8 On the **Select Member Hard Drive** screen, double-click the hard drive to select the member drive that you want to act as the mirror in the configuration, and click **Next**.

9 On the **Specify Volume Size** screen, select the volume size you want, and click **Next**.

NOTE: In the following step, you will lose all data contained on the member drive.

10 Click **Finish** to start migrating, or click **Back** to make changes. You can use your computer normally during migration process.

Creating a Spare Hard Drive

A spare hard drive may be created with a RAID level 1 configuration. The spare hard drive will not be recognized by the operating system, but you will be able to see the spare drive from within Disk Manager or the Intel RAID Option ROM utility. When a member of the RAID level 1 configuration is broken, the computer automatically rebuilds the mirror configuration using the spare hard drive as the broken member's replacement.

To Mark a Drive as a Spare Hard Drive:

1 Click the **Start** button and point to **Programs**→ **Intel(R) Application Accelerator**→ **Intel Matrix Storage Manager** to launch the Intel® Storage Utility.

2 Right-click the hard drive you want to mark as a spare hard drive.

3 Click **Mark as Spare**.

To Remove Spare Marking From a Spare Hard Drive:

1 Right-click the spare hard drive icon.

2 Click **Reset Hard Drive to Non-RAID**

Rebuilding a Degraded RAID Level 1 Configuration

If your computer does not have a spare hard drive, and the computer has reported a degraded RAID level 1 volume, you can manually rebuild the computer's redundancy mirror to a new hard drive by performing the following steps:

1 Click the **Start** button and point to **Programs**→ **Intel(R) Application Accelerator**→ **Intel Matrix Storage Manager** to launch the Intel® Storage Utility.

2 Right-click the available hard drive to which you want to rebuild the RAID level 1 volume, and click **Rebuild to this Disk**.

3 You can use your computer while the computer is rebuilding the RAID level 1 volume.

Transferring Information to a New Computer

The Microsoft® Windows® XP operating system provides a Files and Settings Transfer wizard to move data from the source computer to the new computer. You can move data such as:

- E-mails
- Toolbar settings
- Window sizes
- Internet bookmarks

You can transfer the data to the new computer over a network or serial connection, or you can store it on a removable medium, such as a writable CD or floppy disk.

To prepare the new computer for the file transfer:

1 Click the **Start** button, point to **All Programs**→ **Accessories**→ **System Tools**, and then click **Files and Settings Transfer Wizard**.

2 When the **Files and Settings Transfer Wizard** welcome screen appears, click **Next**.

3 On the **Which computer is this?** screen, click **New Computer** and click **Next**.

4 On the **Do you have a Windows XP CD?** screen, click **I will use the wizard from the Windows XP CD** and click **Next**.

5 When the **Now go to your old computer** screen appears, go to your old or source computer. *Do not* click **Next** at this time.

To copy data from the old computer:

1 On the old computer, insert the Windows XP *Operating System* CD.

2 On the **Welcome to Microsoft Windows XP** screen, click **Perform additional tasks**.

3 Under **What do you want to do?**, click **Transfer files and settings**.

4 On the **Files and Settings Transfer Wizard** welcome screen, click **Next**.

5 On the **Which computer is this?** screen, click **Old Computer** and click **Next**.

6 On the **Select a transfer method** screen, click the transfer method you prefer.

7 On the **What do you want to transfer?** screen, select the items you want to transfer and click **Next**.

   After the information has been copied, the **Completing the Collection Phase** screen appears.

8 Click **Finish**.

To transfer data to the new computer:

1 On the **Now go to your old computer** screen on the new computer, click **Next**.

2 On the **Where are the files and settings?** screen, select the method you chose for transferring your settings and files and click **Next**.

   The wizard reads the collected files and settings and applies them to your new computer.

   When all of the settings and files have been applied, the **Finished** screen appears.

3 Click **Finished** and restart the new computer.

Playing CDs and Movies

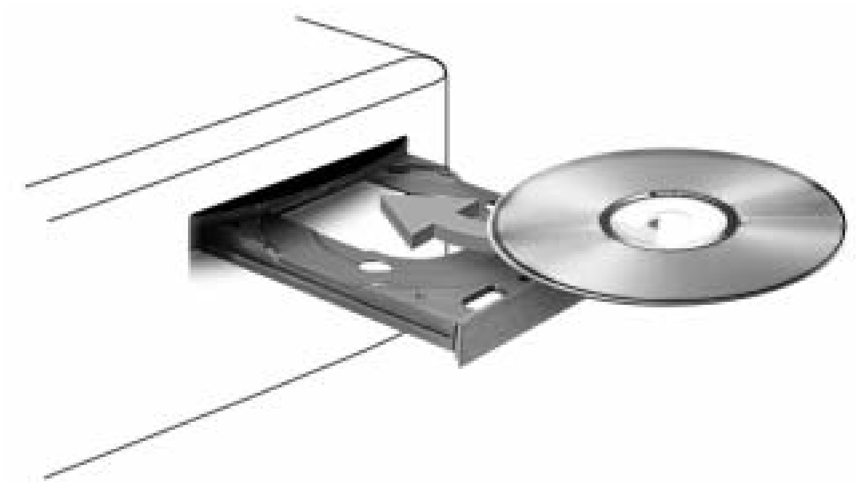
Playing a CD or DVD

NOTICE: Do not press down on the CD or DVD tray when you open or close it. Keep the tray closed when you are not using the drive.

NOTICE: Do not move the computer when you are playing CDs or DVDs.

1 Press the eject button on the front of the drive.

2 Place the disc, label side up, in the center of the tray.



3 Press the eject button or gently push in the tray.

To format CDs for storing data, to create music CDs, or to copy CDs, see the CD software that came with your computer.

NOTE: Ensure that you follow all copyright laws when you create CDs.

A CD player includes the following basic buttons:

▶	Play.
◀◀	Move backward within the current track.
❚❚	Pause.
▶▶	Move forward within the current track.
■	Stop.
⏮	Go to the previous track.
⏏	Eject.
⏭	Go to the next track.

A DVD player includes the following basic buttons:

	Stop.
	Restart the current chapter.
	Play.
	Fast forward.
	Pause.
	Fast reverse.
	Advance a single frame while in pause mode.
	Go to the next title or chapter.
	Continuously play the current title or chapter.
	Go to the previous title or chapter.
	Eject.

For more information on playing CDs or DVDs, click **Help** on the CD or DVD player (if available).

Adjusting the Volume

NOTE: When the speakers are muted, you do not hear the CD or DVD playing.

1. Click the **Start** button, point to **All Programs**→ **Accessories**→ **Entertainment**, and then click **Volume Control**.
2. In the **Volume Control** window, click and drag the bar in the **Volume Control** column and slide it up or down to increase or decrease the volume.

For more information on volume control options, click **Help** in the **Volume Control** window.

Adjusting the Picture

If an error message notifies you that the current resolution and color depth are using too much memory and preventing DVD playback, adjust the display properties.

1. Click the **Start** button and click **Control Panel**.
2. Under **Pick a category**, click **Appearance and Themes**.
3. Under **Pick a task...**, click **Change the screen resolution**.

4 In the **Display Properties** window, click and drag the bar in **Screen resolution** to change the setting to **800 by 600 pixels**.

5 Click the drop-down menu under **Color quality**, and then click **Medium (16 bit)**.

6 Click **OK**.

Copying CDs and DVDs

NOTE: Ensure that you follow all copyright laws when you create CDs or DVDs.

This section applies only to computers that have a CD-R, CD-RW, DVD+RW, DVD+R, or DVD/CD-RW combo drive.

NOTE: The types of CD or DVD drives offered by Dell may vary by country.

The following instructions show how to make an exact copy of a CD or DVD. You can also use Sonic RecordNow for other purposes, including creating CDs from audio files on your computer and creating MP3 CDs. For instructions, see the Sonic RecordNow documentation that came with your computer. Open Sonic RecordNow, click the question mark icon in the upper-right corner of the window, and then click **RecordNow Help** or **RecordNow Tutorial**.

How to Copy a CD or DVD

NOTE: If you have a DVD/CD-RW combo drive and you experience recording problems, check for available software patches at the Sonic support website at **support.sonic.com.**

Currently, five DVD-writable disc formats available: DVD+R, DVD+RW, DVD-R, DVD-RW and DVD-RAM. The DVD-writable drives installed in Dell™ computers will write to DVD+R and DVD+RW media, and can read DVD-R and DVD-RW media. However, DVD-writable drives do not write to and may not read DVD-RAM media. In addition, chimerically available DVD players for home theater systems might not read all five formats.

NOTE: Most commercial DVDs have copyright protection and cannot be copied using Sonic RecordNow.

1 Click the **Start** button, point to **All Programs**→ **Sonic**→ **RecordNow!**→ **RecordNow!**

2 Click either the audio tab or the data tab, depending on the kind of CD or DVD you are planning to copy.

3 Click **Exact Copy**.

4 To copy the CD or DVD:

- *If you have one CD or DVD drive*, ensure that the settings are correct and click **Copy**. The computer reads your source CD or DVD and copies it to a temporary folder on your computer hard drive.

  When prompted, insert a blank CD or DVD into the CD or DVD drive and click **OK**.

- *If you have two CD or DVD drives*, select the drive into which you have inserted your source CD or DVD and click **Copy**. The computer copies the data on the CD or DVD to the blank CD or DVD.

Once you have finished copying the source CD or DVD, the CD or DVD that you have created automatically ejects.

Using Blank CD-Rs, CD-RWs, DVD+Rs, and DVD+RWs

Your CD-RW drive can write to two different types of recording media—CD-Rs and CD-RWs (including High-Speed CD-RWs). Use blank CD-Rs to record music or permanently store data files. After creating a CD-R, you cannot write to that CD-R again (see the Sonic documentation for more information). Use blank CD-RWs to write to CDs or to erase, rewrite, or update data on CDs.

Your DVD writable drive can write to four different types of recording media—CD-Rs, CD-RWs (including High-Speed CD-RWs), DVD+Rs, and DVD+RWs. Blank DVD+Rs can be used to permanently store large amounts of information. After you create a DVD+R disc, you may not be able write to that disc again if the disc is "finalized" or "closed" during the final stage of the disc creation process. Use blank DVD+RWs when you will need to erase, rewrite, or update the information on that disc later.

Helpful Tips

- Use Microsoft® Windows® Explorer to drag and drop files to a CD-R or CD-RW only after you start Sonic RecordNow and open a RecordNow project.
- You must use CD-Rs to burn music CDs that you want to play in regular stereos. CD-RWs do not play in most home or car stereos.
- You cannot create audio DVDs with Sonic RecordNow.
- Music MP3 files can be played only on MP3 players or on computers that have MP3 software installed.
- Do not burn a blank CD-R or CD-RW to its maximum capacity; for example, do not copy a 650-MB file to a 650-MB blank CD. The CD-RW drive needs 1 or 2 MB of the blank CD to finalize the recording.
- Use a blank CD-RW to practice CD recording until you are familiar with CD recording techniques. If you make a mistake, you can erase the data on the CD-RW and try again. You can also use blank CD-RWs to test music file projects before you record the project permanently to a blank CD-R.
- See the Sonic support website at **support.sonic.com** for additional information.

Network Setup Wizard

The Microsoft® Windows® XP operating system provides a Network Setup Wizard to guide you through the process of sharing files, printers, or an Internet connection between computers in a home or small office.

1 Click the **Start** button, point to **All Programs**→ **Accessories**→ **Communications**, and then click **Network Setup Wizard**.
2 On the welcome screen, click **Next**.
3 Click **Checklist for creating a network**.

NOTE: Selecting the connection method **This computer connects directly to the Internet** enables the integrated firewall provided with Windows XP SP1.

4 Complete the checklist and required preparations.

Return to the Network Setup Wizard and follow the instructions on the screen.

Power Management

Overview

The Microsoft® Windows® XP power management features can reduce the amount of electricity your computer uses when it is on and you are not using it. You can reduce power to just the monitor or the hard drive, or you can use standby mode or hibernate mode to reduce power to the entire computer. When the computer exits from a power conservation mode, the Windows desktop is restored to the state it was in before it entered the mode.

NOTE: Windows XP Professional includes security and networking features not available in Windows XP Home Edition. When a Windows XP Professional computer is connected to a network, different options related to security and networking appear in certain windows.

NOTE: Depending on your operating system, the procedures to activate the standby and hibernate modes may be different.

Standby Mode

Standby mode conserves power by turning off the display and the hard drive after a time-out. When the computer exits from standby mode, it returns to the operating state it was in before it entered standby mode.

To set standby mode to automatically activate after a defined period of inactivity:

1 Click the **Start** button and click **Control Panel**.
2 Under **Pick a category**, click **Performance and Maintenance**.
3 Under **or pick a Control Panel icon**, click **Power Options**.

To immediately activate standby mode without a period of inactivity, click the **Start** button, click **Turn Off Computer**, and then click **Stand by**.

To exit from standby mode, press a key on the keyboard or move the mouse.

NOTICE: If your computer loses power while in standby mode, it may lose data.

Hibernate Mode

Hibernate mode conserves power by copying system data to a reserved area on the hard drive and then completely turning off the computer. When the computer exits from hibernate mode, the desktop is restored to the state it was in before it entered hibernate mode.

To activate hibernate mode:

1. Click the **Start** button and click **Control Panel**.
2. Under **Pick a category**, click **Performance and Maintenance**.
3. Under **or pick a Control Panel icon**, click **Power Options**.
4. Define your hibernate settings on the **Power Schemes** tab, **Advanced** tab, and **Hibernate** tab.

To exit from hibernate mode, press the power button. The computer may take a short time to exit from hibernate mode. Pressing a key on the keyboard or moving the mouse does not bring the computer out of hibernation, because the keyboard and the mouse do not function when the computer is in hibernate mode.

Because hibernate mode requires a special file on your hard drive with enough disk space to store the contents of the computer memory, Dell creates an appropriately sized hibernate mode file before shipping the computer to you. If the computer's hard drive becomes corrupted, Windows XP recreates the hibernate file automatically.

Power Options Properties

Define your standby mode settings, hibernate mode settings, and other power settings in the **Power Options Properties** window. To access the **Power Options Properties** window:

1. Click the **Start** button and click **Control Panel**.
2. Under **Pick a category**, click **Performance and Maintenance**.
3. Under **or pick a Control Panel icon**, click **Power Options**.
4. Define your power settings on the **Power Schemes** tab, **Advanced** tab, and **Hibernate** tab.

Power Schemes Tab

Each standard power setting is called a scheme. If you want to select one of the standard Windows schemes installed on your computer, choose a scheme from the **Power schemes** drop-down menu. The settings for each scheme appear in the fields below the scheme name. Each scheme has different settings for starting standby mode or hibernate mode, turning off the monitor, and turning off the hard drive.

The **Power schemes** drop-down menu displays the following schemes:

- **Always On** (default) — If you want to use your computer with no power conservation.
- **Home/Office Desk** — If you use your computer as a home or office computer and you require minimal power conservation.
- **Portable/Laptop** — If your computer is a portable computer that you use for traveling.
- **Presentation** — If you want your computer to run without interruption (using no power conservation).
- **Minimal Power Management** — If you want your computer to run with minimal power conservation.
- **Max Battery** — If your computer is a portable computer and you run your computer from batteries for extended periods of time.

If you want to change the default settings for a scheme, click the drop-down menu in the **Turn off monitor**, **Turn off hard disks**, **System stand by**, or **System hibernates** field, and then select a time-out from the displayed list. Changing the time-out for a scheme field permanently changes the default settings for that scheme, unless you click **Save As** and enter a new name for the changed scheme.

NOTICE: If you set the hard drive to time-out before the monitor does, your computer may appear to be locked up. To recover, press any key on the keyboard or click the mouse. To avoid this problem, always set the monitor to time-out before the hard drive.

Advanced Tab

The **Advanced** tab allows you to:

- Place the power options icon  in the Windows taskbar for quick access.
- Set the computer to prompt you for your Windows password before the computer exits from standby mode or hibernate mode.
- Program the power button to activate standby mode, activate hibernate mode, or turn off the computer.

To program these functions, click an option from the corresponding drop-down menu and click **OK**.

Hibernate Tab

The **Hibernate** tab allows you to enable hibernate mode. If you want to use the hibernate settings you defined on the **Power Schemes** tab, click the **Enable hibernate support** check box on the **Hibernate** tab.

For more information on power management options:

1. Click the **Start** button and click **Help and Support**.
2. In the **Help and Support** window, click **Performance and maintenance**.
3. In the **Performance and maintenance** window, click **Conserving power on your computer**.

2

Optimizing Performance

Hyper-Threading

Hyper-Threading is an Intel® technology that can enhance overall computer performance by allowing one physical processor to function as two logical processors, capable of performing certain tasks simultaneously. It is recommended that you use the Microsoft® Windows® XP Service Pack 1 (SP1) or later operating system because Windows XP is optimized to take advantage of Hyper-Threading technology. While many programs can benefit from Hyper-Threading, some programs have not been optimized for Hyper-Threading and may require an update from the software manufacturer. Contact the software manufacturer for updates and information about using Hyper-Threading with your software.

To determine if your computer is using Hyper-Threading technology:

1 Click the **Start** button, right-click **My Computer**, and then click **Properties**.

2 Click **Hardware** and click **Device Manager**.

3 In the **Device Manager** window, click the plus (+) sign next to **Processors**. If Hyper-Threading is enabled, the processor is listed twice.

You can enable or disable Hyper-Threading through system setup. For more information on accessing system setup, see page 127. For more information on Hyper-Threading, search the Knowledge Base on the Dell website at **support.dell.com.**

Overclocking

Dell locks the processor multiplier options in system setup to prevent processor overclocking. The first and most important reason for preventing overclocking is that Dell's performance labs vigorously test and fine-tune Dell computers at the system level in an attempt to attain the best possible overall performance. Any performance modification that is not implemented in the labs could cause performance degradation. When you receive your computer in the configuration that you ordered, it is already primed for high performance.

The second reason is that an overclocked processor, in general, creates excessive heat and electrical fields that can cause heat fatigue failures within the processor, thus possibly shortening its expected life span. Even slight overclocking can cause a computer to become unstable and lock up.

There are several after-market "performance-modification" products available through various sources, but Dell discourages and does not support the use of those products on its computers.

PCI Express Cards

PCI Express is the next generation technology for graphics cards and PCI cards. The dimensions of PCI Express card slots are different from PCI card slots, and the cards are not interchangeable (you cannot install a PCI card in a PCI Express card slot, or a PCI Express card in a PCI card slot). The PCI Express x16 card slot replaces the AGP graphics card slot.

Some benefits of PCI Express technology include:

- Greater available bandwidth — PCI Express bus bandwidth is 250 MB/s in each direction per lane simultaneously, while PCI bus bandwidth is 133 MB/s in one direction at a time.
- Prioritization of service — Multiple PCI cards installed in a computer all share a common bus, but each PCI Express card operates on its own channel. Activities such as video conferencing and web camera functions can be automatically prioritized through the device software to reduce latency.

3

Solving Problems

Troubleshooting Tips

Follow these tips when you troubleshoot your computer:

- If you added or removed a part before the problem started, review the installation procedures and ensure that the part is correctly installed.
- If a peripheral device does not work, ensure that the device is properly connected.
- If an error message appears on the screen, write down the exact message. This message may help technical support personnel diagnose and fix the problem(s).

If an error message occurs in a program, see the program's documentation.

Battery Problems

⚠ **CAUTION: There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.**

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

REPLACE THE BATTERY — If you have to repeatedly reset time and date information after turning on the computer, or if an incorrect time or date displays during start-up, replace the battery (see page 120). If the battery still does not work properly, contact Dell (see page 139).

Drive Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

ENSURE THAT MICROSOFT® WINDOWS® RECOGNIZES THE DRIVE — Click the **Start** button and click **My Computer**. If the floppy, CD, or DVD drive, is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

TEST THE DRIVE —

- Insert another floppy disk, CD, or DVD to eliminate the possibility that the original one is defective.
- Insert a bootable floppy disk and restart the computer.

CLEAN THE DRIVE OR DISK — See "Cleaning Your Computer" on page 135.

CHECK THE CABLE CONNECTIONS

RUN THE HARDWARE TROUBLESHOOTER — See page 64.

RUN THE DELL DIAGNOSTICS — See page 58.

CD and DVD drive problems

NOTE: High-speed CD or DVD drive vibration is normal and may cause noise, which does not indicate a defect in the drive or the CD or DVD.

NOTE: Because of different regions worldwide and different disc formats, not all DVD titles work in all DVD drives.

ADJUST THE WINDOWS VOLUME CONTROL —

- Click the speaker icon in the lower-right corner of your screen.
- Ensure that the volume is turned up by clicking the slidebar and dragging it up.
- Ensure that the sound is not muted by clicking any boxes that are checked.

CHECK THE SPEAKERS AND SUBWOOFER — See "Sound and Speaker Problems" on page 51.

Problems writing to a CD/DVD-RW drive

CLOSE OTHER PROGRAMS — The CD/DVD-RW drive must receive a steady stream of data when writing. If the stream is interrupted, an error occurs. Try closing all programs before you write to the CD/DVD-RW.

TURN OFF STANDBY MODE IN WINDOWS BEFORE WRITING TO A CD/DVD-RW DISC — See "Standby Mode" on page 32 or search for the keyword *standby* in Windows Help and Support Center. for information on power management modes. For information on accessing window Help, see "Windows Help and Support Center" on page 11.

Hard drive problems

RUN CHECK DISK —

1 Click the **Start** button and click **My Computer**.
2 Right-click **Local Disk C:**.
3 Click **Properties**.
4 Click the **Tools** tab.
5 Under **Error-checking**, click **Check Now**.
6 Click **Scan for and attempt recovery of bad sectors**.
7 Click **Start**.

E-Mail, Modem, and Internet Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: Connect the modem to an analog telephone jack only. The modem does not operate while it is connected to a digital telephone network.

CHECK THE MICROSOFT OUTLOOK® EXPRESS SECURITY SETTINGS — If you cannot open your e-mail attachments:

1 In Outlook Express, click **Tools**, click **Options**, and then click **Security**.
2 Click **Do not allow attachments** to remove the checkmark.

CHECK THE TELEPHONE LINE CONNECTION —
CHECK THE TELEPHONE JACK —
CONNECT THE MODEM DIRECTLY TO THE TELEPHONE WALL JACK —
USE A DIFFERENT TELEPHONE LINE —

- Verify that the telephone line is connected to the jack on the modem. (The jack has either a green label or a connector-shaped icon next to it.)
- Ensure that you hear a click when you insert the telephone line connector into the modem.
- Disconnect the telephone line from the modem and connect it to a telephone. Listen for a dial tone.
- If you have other telephone devices sharing the line, such as an answering machine, fax machine, surge protector, or line splitter, then bypass them and use the telephone to connect the modem directly to the telephone wall jack. If you are using a line that is 3 m (10 ft) or more in length, try a shorter one.

RUN THE MODEM HELPER DIAGNOSTICS — Click the **Start** button, point to **All Programs**, and then click **Modem Helper**. Follow the instructions on the screen to identify and resolve modem problems. (Modem Helper is not available on all computers.)

VERIFY THAT THE MODEM IS COMMUNICATING WITH WINDOWS —

1 Click the **Start** button and click **Control Panel**.
2 Click **Printers and Other Hardware**.
3 Click **Phone and Modem Options**.
4 Click the **Modems** tab.
5 Click the COM port for your modem.
6 Click **Properties**, click the **Diagnostics** tab, and then click **Query Modem** to verify that the modem is communicating with Windows.

If all commands receive responses, the modem is operating properly.

ENSURE THAT YOU ARE CONNECTED TO THE INTERNET — Ensure that you have subscribed to an Internet provider. With the Outlook Express e-mail program open, click **File**. If **Work Offline** has a checkmark next to it, click the checkmark to remove it and connect to the Internet. For help, contact your Internet service provider.

Error Messages

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

If the message is not listed, see the documentation for the operating system or the program that was running when the message appeared.

A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < > | — Do not use these characters in filenames.

A REQUIRED .DLL FILE WAS NOT FOUND — The program that you are trying to open is missing an essential file. To remove and then reinstall the program:

1 Click the **Start** button, click **Control Panel**, and then click **Add or Remove Programs**.
2 Select the program you want to remove.
3 Click the **Change or Remove Program** icon.
4 See the program documentation for installation instructions.

***drive letter* :\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY —** The drive cannot read the disk. Insert a disk into the drive and try again.

INSERT BOOTABLE MEDIA — Insert a bootable floppy disk or CD.

NON-SYSTEM DISK ERROR — Remove the floppy disk from the drive and restart your computer.

NOT ENOUGH MEMORY OR RESOURCES. CLOSE SOME PROGRAMS AND TRY AGAIN — Close all windows and open the program that you want to use. In some cases, you might have to restart your computer to restore computer resources. If so, run the program that you want to use first.

OPERATING SYSTEM NOT FOUND — Contact Dell (see page 139).

IEEE 1394 Device Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

ENSURE THAT THE CABLE FOR THE IEEE 1394 DEVICE IS PROPERLY INSERTED INTO THE DEVICE AND INTO THE CONNECTOR ON THE COMPUTER

ENSURE THAT THE IEEE 1394 DEVICE IS ENABLED WITHIN SYSTEM SETUP — See page 129.

ENSURE THAT THE IEEE 1394 DEVICE IS RECOGNIZED BY WINDOWS —

1. Click the **Start** button and click **Control Panel**.
2. Click **Printers and Other Hardware**.
   If your IEEE 1394 device is listed, Windows recognizes the device.

IF YOU HAVE PROBLEMS WITH A DELL IEEE 1394 DEVICE — Contact Dell (see page 139).

IF YOU HAVE PROBLEMS WITH AN IEEE 1394 DEVICE NOT PROVIDED BY DELL — Contact the IEEE 1394 device manufacturer.

Keyboard Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CHECK THE KEYBOARD CABLE —

- Ensure that the keyboard cable is firmly connected to the computer.
- Shut down the computer (see page 69), reconnect the keyboard cable as shown on the setup diagram for your computer, and then restart the computer.
- Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins.
- Remove keyboard extension cables and connect the keyboard directly to the computer.

TEST THE KEYBOARD — Connect a properly working keyboard to the computer, and try using the keyboard.

RUN THE HARDWARE TROUBLESHOOTER — See page 64.

Lockups and Software Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

The computer does not start up

CHECK THE DIAGNOSTIC LIGHTS — See page 55.

ENSURE THAT THE POWER CABLE IS FIRMLY CONNECTED TO THE COMPUTER AND TO THE ELECTRICAL OUTLET

The computer stops responding

NOTICE: You might lose data if you are unable to perform an operating system shutdown.

TURN THE COMPUTER OFF — If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off. Then restart your computer.

A program stops responding

END THE PROGRAM —

1 Press <Ctrl><Shift><Esc> simultaneously.
2 Click **Applications**.
3 Click the program that is no longer responding.
4 Click **End Task**.

A program crashes repeatedly

NOTE: Software usually includes installation instructions in its documentation or on a floppy disk or CD.

CHECK THE SOFTWARE DOCUMENTATION — If necessary, uninstall and then reinstall the program.

A program is designed for an earlier Windows operating system

RUN THE PROGRAM COMPATIBILITY WIZARD —

The Program Compatibility Wizard configures a program so that it runs in an environment similar to non-Windows XP operating system environments.

1 Click the **Start** button, point to **All Programs**→ **Accessories**, and then click **Program Compatibility Wizard**.
2 In the welcome screen, click **Next**.
3 Follow the instructions on the screen.

A solid blue screen appears

TURN THE COMPUTER OFF — If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off. Then restart your computer.

Other software problems

CHECK THE SOFTWARE DOCUMENTATION OR CONTACT THE SOFTWARE MANUFACTURER FOR TROUBLESHOOTING INFORMATION —

- Ensure that the program is compatible with the operating system installed on your computer.
- Ensure that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
- Ensure that the program is installed and configured properly.
- Verify that the device drivers do not conflict with the program.
- If necessary, uninstall and then reinstall the program.

BACK UP YOUR FILES IMMEDIATELY

USE A VIRUS-SCANNING PROGRAM TO CHECK THE HARD DRIVE, FLOPPY DISKS, OR CDS

SAVE AND CLOSE ANY OPEN FILES OR PROGRAMS AND SHUT DOWN YOUR COMPUTER THROUGH THE START MENU

Memory Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

IF YOU RECEIVE AN INSUFFICIENT MEMORY MESSAGE —

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- See the software documentation for minimum memory requirements. If necessary, install additional memory (see page 123).
- Reseat the memory modules (see page 78) to ensure that your computer is successfully communicating with the memory.
- Run the Dell Diagnostics (see page 58).

IF YOU EXPERIENCE OTHER MEMORY PROBLEMS —

- Reseat the memory modules (see page 78) to ensure that your computer is successfully communicating with the memory.
- Ensure that you are following the memory installation guidelines (see page 79).
- Your computer supports DDR2 memory. For more information about the type of memory supported by your computer, see "Memory" on page 123.
- Run the Dell Diagnostics (see page 58).

Mouse Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CHECK THE MOUSE CABLE —

1. Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins.
2. Remove mouse extension cables, if used, and connect the mouse directly to the computer.
3. Shut down the computer (see page 69), reconnect the mouse cable as shown on the setup diagram for your computer, and then restart the computer.

RESTART THE COMPUTER —

1. Simultaneously press <Ctrl><Esc> to display the **Start** menu.
2. Type u, press the keyboard arrow keys to highlight **Shut down** or **Turn Off**, and then press <Enter>.
3. After the computer turns off, reconnect the mouse cable as shown on the setup diagram for your computer.
4. Start the computer.

TEST THE MOUSE — Connect a properly working mouse to the computer, and try using the mouse.

CHECK THE MOUSE SETTINGS —

1. Click the **Start** button, click **Control Panel**, and then click **Printers and Other Hardware**.
2. Click **Mouse**.
3. Try adjusting the settings.

REINSTALL THE MOUSE DRIVER — See page 61.

RUN THE HARDWARE TROUBLESHOOTER — See page 64.

Network Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CHECK THE NETWORK CABLE CONNECTOR — Ensure that the network cable is firmly inserted into both the network connector on the back of the computer and the network jack.

CHECK THE NETWORK LIGHTS ON THE BACK OF THE COMPUTER — If the link integrity light is off, that indicates no network communication exists. Replace the network cable. For a description of network lights, see "Connectors" on page 125.

RESTART THE COMPUTER AND LOG ON TO THE NETWORK AGAIN

CHECK YOUR NETWORK SETTINGS — Contact your network administrator or the person who set up your network to verify that your network settings are correct and that the network is functioning.

RUN THE HARDWARE TROUBLESHOOTER — See page 64.

Power Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

IF THE POWER LIGHT IS GREEN AND THE COMPUTER IS NOT RESPONDING — See "Diagnostic Lights" on page 55.

IF THE POWER LIGHT IS BLINKING GREEN — The computer is in standby mode. Press a key on the keyboard, move the mouse, or press the power button to resume normal operation.

IF THE POWER LIGHT IS OFF — The computer is either turned off or is not receiving power.

- Reseat the power cable into both the power connector on the back of the computer and the electrical outlet.
- If the computer is plugged into a power strip, ensure that the power strip is plugged into an electrical outlet and that the power strip is turned on. Also bypass power protection devices, power strips, and power extension cables to verify that the computer turns on properly.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
- Ensure that the main power cable and front panel cable are securely connected to the system board (see page 77).

IF THE POWER LIGHT IS BLINKING AMBER — The computer is receiving electrical power, but an internal power problem might exist.

- Ensure that the voltage selection switch is set to match the AC power at your location (if applicable).

IF THE POWER LIGHT IS STEADY AMBER — A device might be malfunctioning or incorrectly installed.

- Ensure that the processor power cable is securely connected to the system board power connector (POWER12V) (see page 77).
- Remove and then reinstall the memory modules (see page 78).
- Remove and then reinstall any cards (see page 81).
- Remove and then reinstall the graphics card, if applicable (see page 86).

ELIMINATE INTERFERENCE — Some possible causes of interference are:

- Power, keyboard, and mouse extension cables
- Too many devices on a power strip
- Multiple power strips connected to the same electrical outlet

Printer Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: If you need technical assistance for your printer, contact the printer's manufacturer.

CHECK THE PRINTER DOCUMENTATION — See the printer documentation for setup and troubleshooting information.

ENSURE THAT THE PRINTER IS TURNED ON

CHECK THE PRINTER CABLE CONNECTIONS —

- See the printer documentation for cable connection information.
- Ensure that the printer cables are securely connected to the printer and the computer.

TEST THE ELECTRICAL OUTLET — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

VERIFY THAT THE PRINTER IS RECOGNIZED BY WINDOWS —

1. Click the **Start** button, click **Control Panel**, and then click **Printers and Other Hardware**.
2. Click **View installed printers or fax printers**.

   If the printer is listed, right-click the printer icon.
3. Click **Properties** and click the **Ports** tab. For a parallel printer, ensure that the **Print to the following port(s):** setting is **LPT1 (Printer Port)**. For a USB printer, ensure that the **Print to the following port(s):** setting is **USB**.

REINSTALL THE PRINTER DRIVER — See the printer documentation for instructions.

Scanner Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTE: If you need technical assistance for your scanner, contact the scanner's manufacturer.

CHECK THE SCANNER DOCUMENTATION — See the scanner documentation for setup and troubleshooting information.

UNLOCK THE SCANNER — Ensure that your scanner is unlocked if it has a locking tab or button.

RESTART THE COMPUTER AND TRY THE SCANNER AGAIN

CHECK THE CABLE CONNECTIONS —

- See the scanner documentation for cable connection information.
- Ensure that the scanner cables are securely connected to the scanner and the computer.

VERIFY THAT THE SCANNER IS RECOGNIZED BY MICROSOFT WINDOWS —

1 Click the **Start** button, click **Control Panel**, and then click **Printers and Other Hardware**.

2 Click **Scanners and Cameras**.

If your scanner is listed, Windows recognizes the scanner.

REINSTALL THE SCANNER DRIVER — See the scanner documentation for instructions.

Sound and Speaker Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

No sound from speakers

NOTE: The volume control in some MP3 players overrides the Windows volume setting. If you have been listening to MP3 songs, ensure that you did not turn the player volume down or off.

CHECK THE SPEAKER CABLE CONNECTIONS — Ensure that the speakers are connected as shown on the setup diagram supplied with the speakers. If you purchased a sound card, ensure that the speakers are connected to the card.

ENSURE THAT THE SUBWOOFER AND THE SPEAKERS ARE TURNED ON — See the setup diagram supplied with the speakers. If your speakers have volume controls, adjust the volume, bass, or treble to eliminate distortion.

ADJUST THE WINDOWS VOLUME CONTROL — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

DISCONNECT HEADPHONES FROM THE HEADPHONE CONNECTOR — Sound from the speakers is automatically disabled when headphones are connected to the computer's front-panel headphone connector.

TEST THE ELECTRICAL OUTLET — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

ELIMINATE POSSIBLE INTERFERENCE — Turn off nearby fans, fluorescent lights, or halogen lamps to check for interference.

RUN THE SPEAKER DIAGNOSTICS

REINSTALL THE SOUND DRIVER — See page 60.

RUN THE HARDWARE TROUBLESHOOTER — See page 64.

No sound from headphones

CHECK THE HEADPHONE CABLE CONNECTION — Ensure that the headphone cable is securely inserted into the headphone connector (see page 72).

ADJUST THE WINDOWS VOLUME CONTROL — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Video and Monitor Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

If the screen is blank

NOTE: See the monitor documentation for troubleshooting procedures.

CHECK THE MONITOR CABLE CONNECTION —

- Ensure that the graphics cable is connected as shown on the setup diagram for your computer.
- If you are using a graphics extension cable and removing the cable solves the problem, the cable is defective.
- Swap the computer and monitor power cables to determine if the power cable is defective.
- Check the connector for bent or broken pins. (It is normal for monitor cable connectors to have missing pins.)

CHECK THE MONITOR POWER LIGHT — If the power light is off, firmly press the button to ensure that the monitor is turned on. If the power light is lit or blinking, the monitor has power. If the power light is blinking, press a key on the keyboard or move the mouse.

TEST THE ELECTRICAL OUTLET — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

CHECK THE DIAGNOSTIC LIGHTS — See page 55.

If the screen is difficult to read

CHECK THE MONITOR SETTINGS — See the monitor documentation for instructions on adjusting the contrast and brightness, demagnetizing (degaussing) the monitor, and running the monitor self-test.

MOVE THE SUBWOOFER AWAY FROM THE MONITOR — If your speaker system includes a subwoofer, ensure that the subwoofer is at least 60 cm (2 ft) away from the monitor.

MOVE THE MONITOR AWAY FROM EXTERNAL POWER SOURCES — Fans, fluorescent lights, halogen lamps, and other electrical devices can cause the screen image to appear "shaky." Turn off nearby devices to check for interference.

ROTATE THE MONITOR TO ELIMINATE SUNLIGHT GLARE AND POSSIBLE INTERFERENCE

ADJUST THE WINDOWS DISPLAY SETTINGS —

1 Click the **Start** button, click **Control Panel**, and then click **Appearance and Themes**.
2 Click **Display** and click the **Settings** tab.
3 Try different settings for **Screen resolution** and **Color quality.**

4

Advanced Troubleshooting

Diagnostic Lights

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

To help you troubleshoot a problem, your computer has four lights labeled "1," "2," "3," and "4" on the front panel (see page 72). When the computer starts normally, the lights flash. After the computer starts, all four lights display solid green. If the computer malfunctions, the color and sequence of the lights identify the problem.

Light Pattern	Problem Description	Suggested Resolution
	The computer is in a normal "off" condition or a possible pre-BIOS failure has occurred. The diagnostic lights are not lit after the system successfully boots to the operating system.	Plug the computer into a working electrical outlet. Also see "Power Problems" on page 48.
	A possible processor failure has occurred.	Reinstall the processor (see page 110) and restart the computer.
	Memory modules are detected, but a memory failure has occurred.	• If you have two or more memory modules installed, remove the modules, reinstall one module (see page 79), and then restart the computer. If the computer starts normally, reinstall an additional module. Continue until you have identified a faulty module or reinstalled all modules without error. • If available, install properly working memory of the same type into your computer (see page 79). • If the problem persists, contact Dell (see page 139).

Light Pattern	Problem Description	Suggested Resolution
	A possible graphics card failure has occurred.	• If the computer has a graphics card, remove the card (see page 89), reinstall it, and then restart the computer. • If the problem still exists, install a graphics card that you know works and restart the computer. • If the problem persists, contact Dell (see page 139).
	A possible floppy drive or hard drive failure has occurred.	Reseat all power and data cables and restart the computer.
	A possible USB failure has occurred.	Reinstall all USB devices, check cable connections, and then restart the computer.
	No memory modules are detected.	• If you have two or more memory modules installed, remove the modules, reinstall one module (see page 79), and then restart the computer. If the computer starts normally, reinstall an additional module. Continue until you have identified a faulty module or reinstalled all modules without error. • If available, install properly working memory of the same type into your computer (see page 79). • If the problem persists, contact Dell (see page 139).
	Memory modules are detected, but a memory configuration or compatibility error exists.	• Ensure that no special memory module/memory connector placement requirements exist (see page 78). • Verify that the memory modules that you are installing are compatible with your computer (see page 78). • If the problem persists, contact Dell (see page 139

Light Pattern	Problem Description	Suggested Resolution
	A possible expansion card failure has occurred.	1 Determine if a conflict exists by removing a card (not a graphics card) and restarting the computer (see page 82). 2 If the problem persists, reinstall the card that you removed, remove a different card, and then restart the computer. 3 Repeat this process for each card. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts (see page 64). 4 If the problem persists, contact Dell (see page 139).
	Another failure has occurred.	• Ensure that the cables are properly connected to the system board from the hard drive, CD drive, and DVD drive (see page 77). • If there is an error message on your screen identifying a problem with a device (such as the floppy drive or hard drive), check the device to make sure it is functioning properly. • The operating system is attempting to boot from a device (such as the floppy drive or hard drive); check system setup (see page 127) to make sure the boot sequence is correct for the devices installed on your computer. • If the problem persists, contact Dell (see page 139).
	The computer is in a normal operating condition after POST.	None.

Dell Diagnostics

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

When to Use the Dell Diagnostics

If you experience a problem with your computer, perform the checks in "Solving Problems" (see page 39) and run the Dell Diagnostics before you contact Dell for technical assistance.

NOTICE: The Dell Diagnostics works only on Dell™ computers.

Start the Dell Diagnostics from either your hard drive (see page 58) or from the *Dell Dimension ResourceCD*.

Starting the Dell Diagnostics From Your Hard Drive

1 Turn on (or restart) your computer.

2 When the DELL™ logo appears, press <F12> immediately.

NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your ResourceCD (see page 58).

If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop. Then shut down your computer (see page 69) and try again.

3 When the boot device list appears, highlight **Boot to Utility Partition** and press <Enter>.

4 When the Dell Diagnostics **Main Menu** appears, select the test you want to run (see page 59).

Starting the Dell Diagnostics From the ResourceCD

1 Insert the ResourceCD.

2 Shut down and restart the computer (see page 69).

When the DELL logo appears, press <F12> immediately.

If you wait too long and the Windows logo appears, continue to wait until you see the Windows desktop. Then shut down your computer (see page 69) and try again.

NOTE: The next steps change the boot sequence for one time only. On the next start-up, the computer boots according to the devices specified in system setup.

3 When the boot device list appears, highlight **IDE CD-ROM Device** and press <Enter>.

4 Select the **IDE CD-ROM Device** option from the CD boot menu.

5 Select the **Boot from CD-ROM** option from the menu that appears.

6 Type `1` to start the ResourceCD menu.

7 Type `2` to start the Dell Diagnostics.

8 Select **Run the 32 Bit Dell Diagnostics** from the numbered list. If multiple versions are listed, select the version appropriate for your computer.

9 When the Dell Diagnostics **Main Menu** appears, select the test you want to run (see page 59).

Dell Diagnostics Main Menu

1 After the Dell Diagnostics loads and the **Main Menu** screen appears, click the button for the option you want.

Option	Function
Express Test	Performs a quick test of devices. This test typically takes 10 to 20 minutes and requires no interaction on your part. Run **Express Test** first to increase the possibility of tracing the problem quickly.
Extended Test	Performs a thorough check of devices. This test typically takes an hour or more and requires you to answer questions periodically.
Custom Test	Tests a specific device. You can customize the tests you want to run.
Symptom Tree	Lists the most common symptoms encountered and allows you to select a test based on the symptom of the problem you are having.

2 If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and follow the instructions on the screen.

If you cannot resolve the error condition, contact Dell (see page 139).

NOTE: The Service Tag for your computer is located at the top of each test screen. If you contact Dell, technical support will ask for your Service Tag.

3 If you run a test from the **Custom Test** or **Symptom Tree** option, click the applicable tab described in the following table for more information.

Tab	Function
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and may indicate requirements for running the test.

Tab	Function
Configuration	Displays your hardware configuration for the selected device. The Dell Diagnostics obtains configuration information for all devices from system setup, memory, and various internal tests, and it displays the information in the device list in the left pane of the screen. The device list may not display the names of all the components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test by changing the test settings.

4 When the tests are completed, if you are running the Dell Diagnostics from the ResourceCD, remove the CD.

5 Close the test screen to return to the **Main Menu** screen. To exit the Dell Diagnostics and restart the computer, close the **Main Menu** screen.

Drivers

What Is a Driver?

A driver is a program that controls a device such as a printer, mouse, or keyboard. All devices require a driver program.

A driver acts like a translator between the device and any other programs that use the device. Each device has its own set of specialized commands that only its driver recognizes.

Dell ships your computer to you with required drivers already installed—no further installation or configuration is needed.

NOTICE: The *Dell Dimension ResourceCD* may contain drivers for operating systems that are not on your computer. Ensure that you are installing software appropriate for your operating system.

Many drivers, such as the keyboard driver, come with your Microsoft® Windows® operating system. You may need to install drivers if you:

- Upgrade your operating system.
- Reinstall your operating system.
- Connect or install a new device.

Identifying Drivers

If you experience a problem with any device, identify whether the driver is the source of your problem and, if necessary, update the driver.

Windows XP

1 Click the **Start** button and click **Control Panel**.

2 Under **Pick a Category**, click **Performance and Maintenance**.

3 Click **System**.

4 In the **System Properties** window, click the **Hardware** tab.

5 Click **Device Manager**.

6 Scroll down the list to see if any device has an exclamation point (a yellow circle with a [!]) on the device icon.

   If an exclamation point is next to the device name, you may need to reinstall the driver or install a new driver (see page 60).

Reinstalling Drivers

NOTICE: The Dell Support website at **support.dell.com** and your *Dell Dimension ResourceCD* provide approved drivers for Dell™ computers. If you install drivers obtained from other sources, your computer might not work correctly.

Using Windows XP Device Driver Rollback

If a problem occurs on your computer after you install or update a driver, use Windows XP Device Driver Rollback to replace the driver with the previously installed version.

1 Click the **Start** button and click **Control Panel**.

2 Under **Pick a Category**, click **Performance and Maintenance**.

3 Click **System**.

4 In the **System Properties** window, click the **Hardware** tab.

5 Click **Device Manager**.

6 Right-click the device for which the new driver was installed and click **Properties**.

7 Click the **Drivers** tab.

8 Click **Roll Back Driver**.

If Device Driver Rollback does not resolve the problem, then use System Restore to return your computer to the operating state that existed before you installed the new driver.

Using the ResourceCD

If using Device Driver Rollback or System Restore does not resolve the problem, then reinstall the driver from the ResourceCD.

1 With the Windows desktop displayed, insert the ResourceCD.

   If this is your first time to use the ResourceCD, go to step 2. If not, go to step 5.

2 When the ResourceCD installation program starts, follow the prompts on the screen.

3 When the **InstallShield Wizard Complete** window appears, remove the ResourceCD and click **Finish** to restart the computer.

4 When you see the Windows desktop, reinsert the ResourceCD.

5 At the **Welcome Dell System Owner** screen, click **Next**.

NOTE: The ResourceCD displays drivers only for hardware that came installed in your computer. If you installed additional hardware, the drivers for the new hardware might not be displayed by the ResourceCD. If those drivers are not displayed, exit the ResourceCD program. For drivers information, see the documentation that came with the device.

A message stating that the ResourceCD is detecting hardware in your computer appears.

The drivers that are used by your computer are automatically displayed in the **My Drivers—The ResourceCD has identified these components in your system** window.

6 Click the driver that you want to reinstall and follow the instructions on the screen.

If a particular driver is not listed, then that driver is not required by your operating system.

Manually Reinstalling Drivers

1 After extracting the driver files to your hard drive as described in the previous section, click the **Start** button and right-click **My Computer**.

2 Click **Properties**.

3 Click the **Hardware** tab and click **Device Manager**.

4 Double-click the type of device for which you are installing the driver.

5 Double-click the name of the device for which you are installing the driver.

6 Click the **Driver** tab and click **Update Driver**.

7 Click **Install from a list or specific location (Advanced)** and click **Next**.

8 Click **Browse** and browse to the location to which you previously extracted the driver files.

9 When the name of the appropriate driver appears, click **Next**.

10 Click **Finish** and restart your computer.

Using Microsoft® Windows® XP System Restore

The Microsoft® Windows® XP operating system provides System Restore to allow you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. See the Windows Help and Support Center for information on using System Restore. To access help, see page 11.

NOTICE: Make regular backups of your data files. System Restore does not monitor your data files or recover them.

Creating a Restore Point

1. Click the **Start** button and click **Help and Support**.
2. Click **System Restore**.
3. Follow the instructions on the screen.

Restoring the Computer to an Earlier Operating State

If problems occur after you install a device driver, use Device Driver Rollback (see page 61) to resolve the problem. If that is unsuccessful, then use System Restore.

NOTICE: Before you restore the computer to an earlier operating state, save and close any open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click the **Start** button, point to **All Programs**→ **Accessories**→ **System Tools**, and then click **System Restore**.
2. Ensure that **Restore my computer to an earlier time** is selected and click **Next**.
3. Click a calendar date to which you want to restore your computer.

   The **Select a Restore Point** screen provides a calendar that allows you to see and select restore points. All calendar dates with available restore points appear in boldface type.

4. Select a restore point and click **Next**.

   If a calendar date has only one restore point, then that restore point is automatically selected. If two or more restore points are available, click the restore point that you prefer.

5. Click **Next**.

   The **Restoration Complete** screen appears after System Restore finishes collecting data and then the computer restarts.

6. After the computer restarts, click **OK**.

To change the restore point, you can either repeat the steps using a different restore point, or you can undo the restoration.

Undoing the Last System Restore

NOTICE: Before you undo the last system restore, save and close all open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click the **Start** button, point to **All Programs**→ **Accessories**→ **System Tools**, and then click **System Restore**.
2. Click **Undo my last restoration** and click **Next**.

3 Click **Next**.

The **System Restore** screen appears and the computer restarts.

4 After the computer restarts, click **OK**.

Enabling System Restore

If you reinstall Windows XP with less than 200 MB of free hard-disk space available, System Restore is automatically disabled. To see if System Restore is enabled:

1 Click the **Start** button and click **Control Panel**.
2 Click **Performance and Maintenance**.
3 Click **System**.
4 Click the **System Restore** tab.
5 Ensure that **Turn off System Restore** is unchecked.

Resolving Software and Hardware Incompatibilities

If a device is either not detected during the operating system setup or is detected but incorrectly configured, you can use the Hardware Troubleshooter to resolve the incompatibility.

To resolve incompatibilities using the Hardware Troubleshooter:

1 Click the **Start** button and click **Help and Support**.
2 Type `hardware troubleshooter` in the **Search** field and click the arrow to start the search.
3 Click **Hardware Troubleshooter** in the **Search Results** list.
4 In the **Hardware Troubleshooter** list, click **I need to resolve a hardware conflict on my computer**, and click **Next**.

Reinstalling Microsoft® Windows® XP

NOTICE: You must use Windows XP Service Pack 1 (SP1) or later when you reinstall Windows XP.

Before You Begin

If you are considering reinstalling the Windows XP operating system to correct a problem with a newly installed driver, first try using Windows XP Device Driver Rollback (see page 61). If Device Driver Rollback does not resolve the problem, then use System Restore (see page 62) to return your operating system to the operating state it was in before you installed the new device driver.

NOTICE: Before performing the installation, back up all data files on your primary hard drive. For conventional hard drive configurations, the primary hard drive is the first drive detected by the computer.

To reinstall Windows XP, you need the following items:

- Dell™ *Operating System* CD
- Dell ResourceCD

NOTE: The ResourceCD contains drivers that were installed during assembly of the computer. Use the ResourceCD to load any required drivers.

Reinstalling Windows XP

To reinstall Windows XP, perform all the steps in the following sections in the order in which they are listed.

The reinstallation process can take 1 to 2 hours to complete. After you reinstall the operating system, you must also reinstall the device drivers, virus protection program, and other software.

NOTICE: The *Operating System* CD provides options for reinstalling Windows XP. The options can overwrite files and possibly affect programs installed on your hard drive. Therefore, do not reinstall Windows XP unless a Dell technical support representative instructs you to do so.

NOTICE: To prevent conflicts with Windows XP, disable any virus protection software installed on your computer before you reinstall Windows XP. See the documentation that came with the software for instructions.

Booting From the Operating System CD

1. Save and close any open files and exit any open programs.
2. Insert the *Operating System* CD. Click **Exit** if `Install Windows XP` message appears.
3. Restart the computer.
4. Press <F12> immediately after the DELL™ logo appears.

   If the operating system logo appears, wait until you see the Windows desktop, and then shut down the computer and try again.
5. Press the arrow keys to select **CD-ROM**, and press <Enter>.
6. When the `Press any key to boot from CD` message appears, press any key.

Windows XP Setup

1. When the **Windows XP Setup** screen appears, press <Enter> to select **To set up Windows now**.
2. Read the information on the **Microsoft Windows Licensing Agreement** screen, and press <F8> to accept the license agreement.
3. If your computer already has Windows XP installed and you want to recover your current Windows XP data, type `r` to select the repair option, and remove the CD.
4. If you want to install a new copy of Windows XP, press <Esc> to select that option.

5 Press <Enter> to select the highlighted partition (recommended), and follow the instructions on the screen.

The **Windows XP Setup** screen appears, and the operating system begins to copy files and install the devices. The computer automatically restarts multiple times.

NOTE: The time required to complete the setup depends on the size of the hard drive and the speed of your computer.

NOTICE: Do not press any key when the following message appears: `Press any key to boot from the CD`.

6 When the **Regional and Language Options** screen appears, select the settings for your location and click **Next**.

7 Enter your name and organization (optional) in the **Personalize Your Software** screen, and click **Next**.

8 *If you are reinstalling Windows XP Home Edition*, at the **What's your computer's name** window, enter a name for your computer (or accept the name provided) and click **Next**.

If you are reinstalling Windows XP Professional, at the **Computer Name and Administrator Password** window, enter a name for your computer (or accept the one provided) and a password, and click **Next**.

9 If the **Modem Dialing Information** screen appears, enter the requested information and click **Next**.

10 Enter the date, time, and time zone in the **Date and Time Settings** window, and click **Next**.

11 If the **Networking Settings** screen appears, click **Typical** and click **Next**.

12 If you are reinstalling Windows XP Professional and you are prompted to provide further information regarding your network configuration, enter your selections. If you are unsure of your settings, accept the default selections.

Windows XP installs the operating system components and configures the computer. The computer automatically restarts.

NOTICE: Do not press any key when the following message appears: `Press any key to boot from the CD.`

13 When the **Welcome to Microsoft** screen appears, click **Next**.

14 When the `How will this computer connect to the Internet?` message appears, click **Skip**.

15 When the **Ready to register with Microsoft?** screen appears, select **No, not at this time** and click **Next**.

16 When the **Who will use this computer?** screen appears, you can enter up to five users.

17 Click **Next**.

18 Click **Finish** to complete the setup, and remove the CD.

19 Reinstall the appropriate drivers with the ResourceCD (see page 61).

20 Reinstall your virus protection software.

21 Reinstall your programs.

NOTE: To reinstall and activate your Microsoft Office or Microsoft Works Suite programs, you need the Product Key number located on the back of the Microsoft Office or Microsoft Works Suite CD sleeve.

5

Removing and Installing Parts

Before You Begin

This chapter provides procedures for removing and installing the components in your computer. Unless otherwise noted, each procedure assumes that the following conditions exist:

- You have performed the steps in "Turning Off Your Computer" (see page 69) and "Before Working Inside Your Computer" (see page 70).
- You have read the safety information in your Dell™ *Product Information Guide*.
- A component can be replaced by performing the removal procedure in reverse order.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- BIOS updates available on **support.dell.com**

Turning Off Your Computer

NOTICE: To avoid losing data, save and close any open files and exit any open programs before you turn off your computer.

1 Shut down the operating system:

   a Save and close any open files, exit any open programs, click the **Start** button, and then click **Turn Off Computer**.

   b In the **Turn off computer** window, click **Turn off**.
   The computer turns off after the operating system shutdown process finishes.

2 Ensure that the computer and any attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for 4 seconds.

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help ensure your own personal safety.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

NOTICE: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

NOTICE: When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTICE: To avoid damaging the computer, perform the following steps before you begin working inside the computer.

1 Turn off your computer (see page 69).

NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2 Disconnect any telephone or telecommunication lines from the computer.

3 Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

4 Open the computer cover (see page 75).

NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

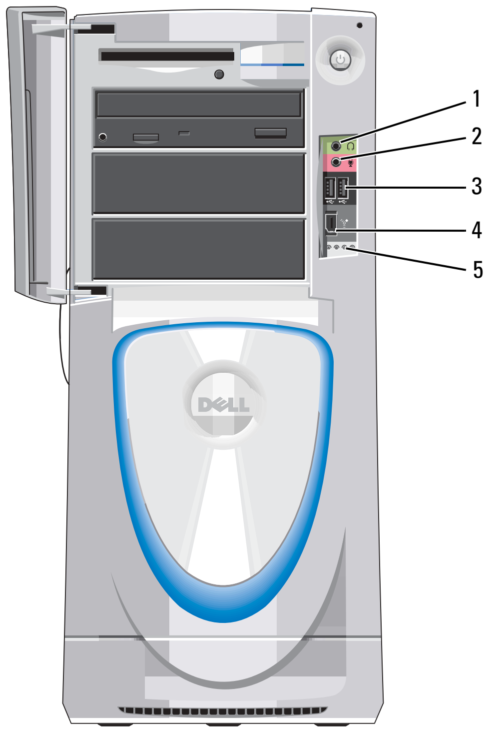
Front and Back View of the Computer

Front View



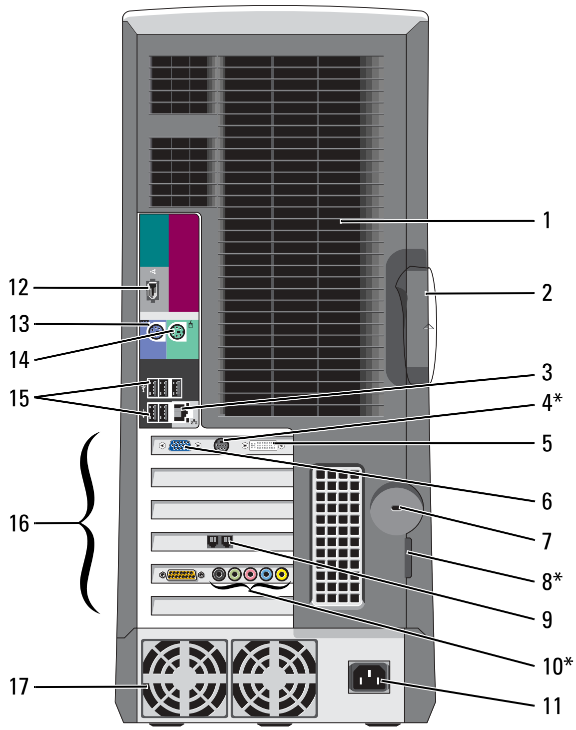
1	hard-drive activity light	The hard-drive light is on when the computer reads data from or writes data to the hard drive. The light might also be on when a device such as your CD player is operating.
2	power button	Press to turn on the computer. **NOTICE:** To avoid losing data, do not use the power button to turn off the computer. Instead, perform an operating system shutdown.
3	drive door	Open the drive door to access the floppy and CD/DVD drives. **NOTE:** The drive door is removable; if you remove it or accidentally knock it off its hinges, it snaps back in place. For instructions on how to reattach the door, see page 118.
4	front-panel door	Open the front-panel door to use the front-panel connectors.

Front View (Doors Open)

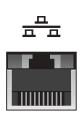


1	headphone connector	Use the headphone connector to attach headphones and most kinds of speakers.
2	microphone connector	Use the microphone connector to attach a personal computer microphone for voice or musical input into a sound or telephony program.
3	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras. It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
4	IEEE 1394 connector	Attach high-speed serial multimedia devices, such as digital video cameras.
5	diagnostic lights (4)	Use the lights to help you troubleshoot a computer problem based on the diagnostic code. For more information, see "Diagnostics Lights" on page 55.

Back View



* Not present on certain computers

1	processor fans (2)	For optimal cooling, two processor fans are provided. Do not block the vents.
2	cover latch release	To open the computer, lay the computer on its side with the cover latch release at the top and then push the latch to the left. See "Opening the Computer Cover" on page 75.
3	network adapter connector  network or broadband jack	To attach your computer to a network or broadband device, connect one end of a network cable to either a network jack or to your network or broadband device. Connect the other end of the network cable to the network adapter connector on the back panel of your computer. A click indicates that the network cable has been securely attached. **NOTE:** Do not plug a telephone cable into the network connector. On computers with a network connector card, use the connector on the card. It is recommended that you use Category 5 wiring and connectors for your network. If you must use Category 3 wiring, force the network speed to 10 Mbps to ensure reliable operation.
4	TV-OUT connector	Connects your computer to a TV. For more information, see "Connecting Two Monitors" on page 16.

5	DVI connector	If your monitor has a DVI connector, plug it into the DVI connector on the computer. If your monitor has a VGA connector, plug it into the VGA connector on the computer.
6	VGA connector	If your monitor has a VGA connector, plug it into the VGA connector on the computer. If your monitor has a DVI connector, plug it into the DVI connector on the computer.
7	security cable slot	Use a security cable with the slot to help secure your computer.
8	padlock ring	Insert a padlock to lock the computer cover.
9	optional modem connector	If you have a modem, connect a telephone cable to the modem connector (optional). **NOTE:** For optimum performance, install a modem card only in PCI slot 2, 3, or 4. **NOTE:** Do not plug a telephone cable into the network connector.
10	sound card connectors	• Line-in connector — Use the blue line-in connector to attach a record/playback device such as a cassette player, CD player, or VCR. • Microphone connector — Use the pink microphone connector to attach a personal computer microphone for voice or musical input into a sound or telephony program. • Line-out connector — Use the green line-out connector to attach headphones and most speakers with integrated amplifiers. • Surround sound connector — Use the black surround connector to attach multichannel-capable speakers. • Center/Low-Frequency Effects (LFE) connector — Use the yellow center/LFE connector to attach your subwoofer.
11	power connector	Insert the power cable.
12	IEEE 1394 connector	Attach high-speed serial multimedia devices, such as digital video cameras.
13	keyboard connector	If you have a standard keyboard, plug it into the purple keyboard connector. If you have a USB keyboard, plug it into a USB connector.
14	mouse connector	Plug a standard mouse into the green mouse connector. Turn off the computer and any attached devices before you connect a mouse to the computer. If you have a USB mouse, plug it into a USB connector.
15	USB 2.0 connectors (5)	Use the back USB connectors for devices that typically remain connected, such as printers and keyboards. It is recommended that you use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras.
16	card slots	Access connectors for any installed PCI cards (three slots) and PCI Express cards (one x16 slot, one x4 slot, and one x1 slot).
17	power supply fans	For optimal cooling, two power supply fans are provided. Do not block the vents.

Opening the Computer Cover

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

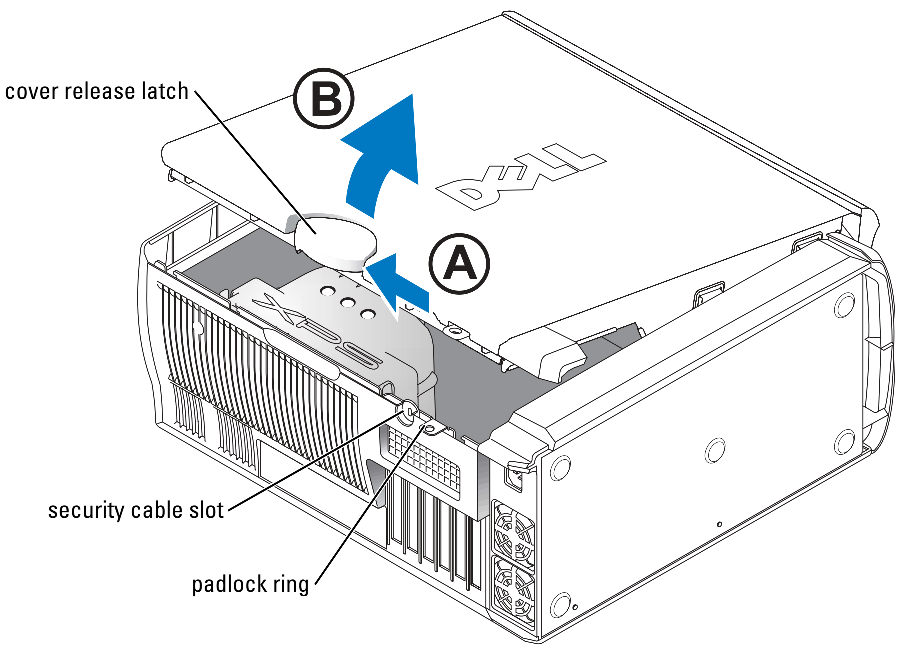
1 Follow the procedures in "Before You Begin" (see page 69).

2 Lay the computer on its side so that the arrow on the bottom of the computer points up.

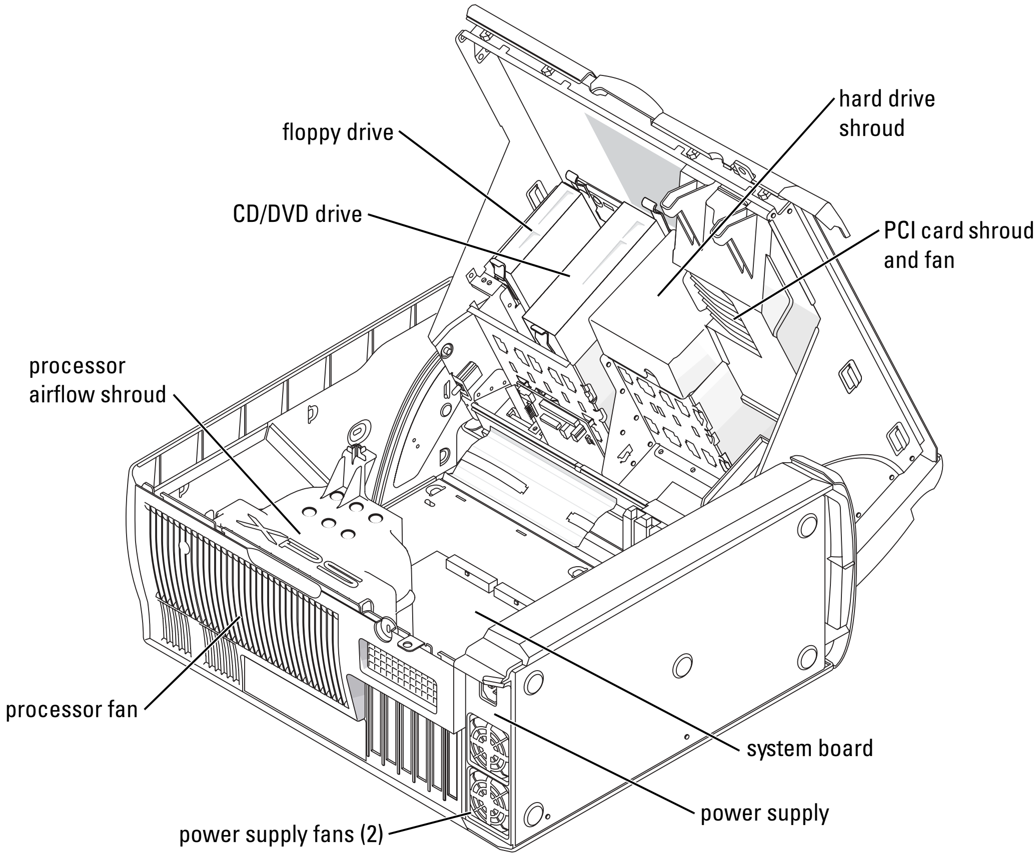
NOTICE: Ensure that sufficient space exists to accommodate the open cover—at least 30 cm (1 ft) of desk top space.

3 Slide the cover release latch toward the top of the computer.

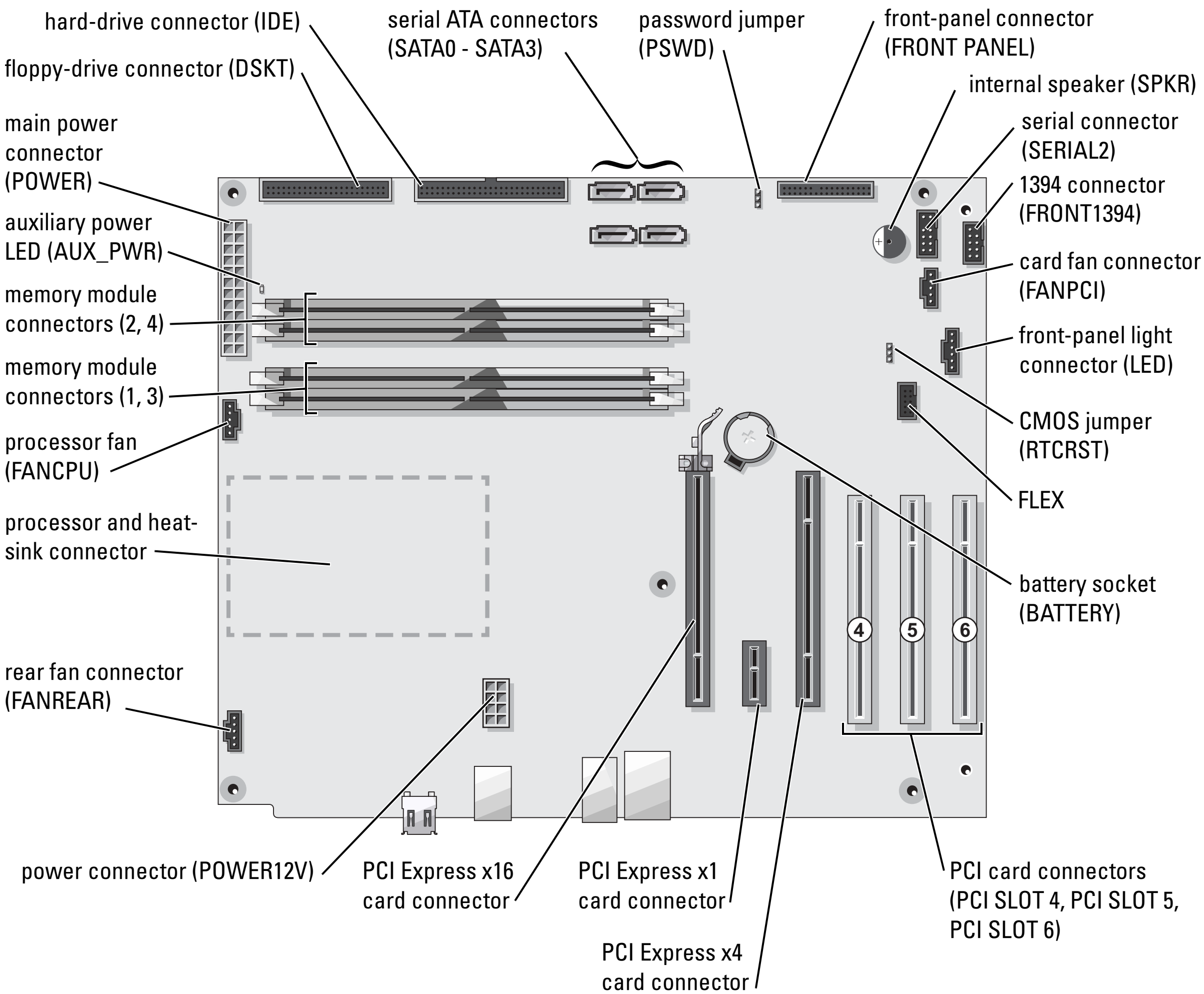
4 Raise the cover, and pivot it toward the front of the computer.



Inside View of Your Computer



System Board Components



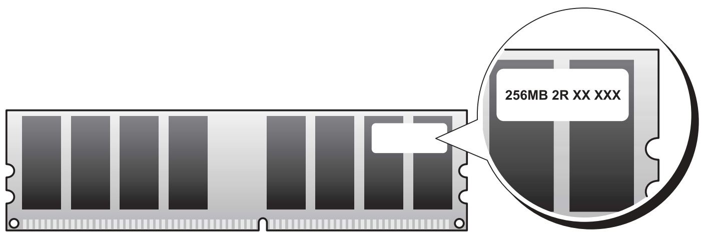
Memory

You can increase your computer memory by installing memory modules on the system board.

Your computer supports DDR2 memory. For additional information on the type of memory supported by your computer, see "Memory" on page 123.

DDR2 Memory Overview

- DDR2 memory modules should be installed in *pairs of matched memory size and speed*. If the DDR2 memory modules are not installed in matched pairs, the computer will continue to operate, but with a slight reduction in performance. See the label on the upper-right or upper-left corner of the module to determine the module's capacity.



NOTE: Always install DDR2 memory modules in the order indicated on the system board.

The recommended memory configurations are:

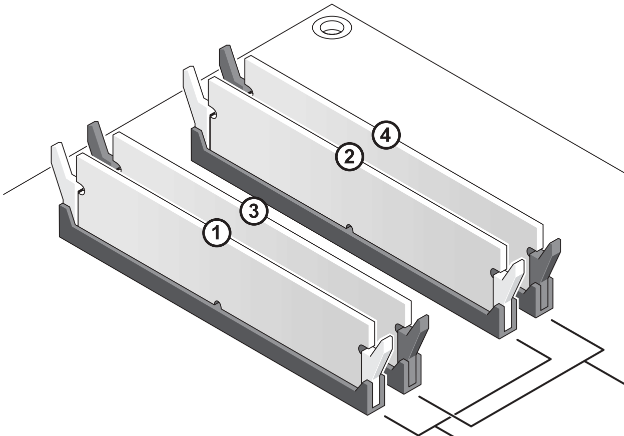
– A pair of matched memory modules installed in DIMM connectors 1 and 2

or

– A pair of matched memory modules installed in DIMM connectors 1 and 2 and another matched pair installed in DIMM connectors 3 and 4

NOTICE: Do not install ECC memory modules.

- If you install mixed pairs of PC2-4300 (DDR2 533-MHz) and PC2-5300 (DDR2 667-MHz) memory, the modules function at the speed of the slowest module installed.
- Be sure to install a single memory module in DIMM connector 1, the connector closest to the processor, before you install modules in the other connectors.



NOTICE: If you remove your original memory modules from the computer during a memory upgrade, keep them separate from any new modules that you may have, even if you purchased the new modules from Dell. If possible, *do not* pair an original memory module with a new memory module. Otherwise, your computer may not start properly. You should install your original memory modules in pairs either in DIMM connectors 1 and 2 or DIMM connectors 3 and 4.

NOTE: Memory purchased from Dell is covered under your computer warranty.

Addressing Memory With 4-GB Configurations

Your computer supports a maximum of 8 GB of memory when you use four 2-GB DIMMs. Current operating systems, such as Microsoft® Windows® XP, can only use a maximum of 4 GB of address space; however, the amount of memory available to the operating system is less than 4 GB. Certain components within the computer require address space in the 4-GB range. Any address space reserved for these components cannot be used by computer memory.

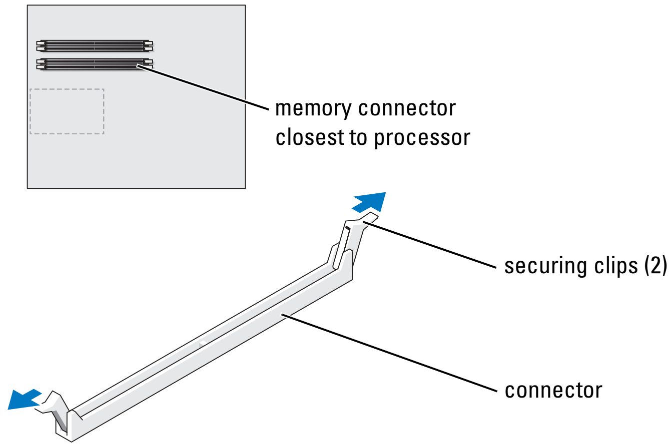
Installing Memory

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

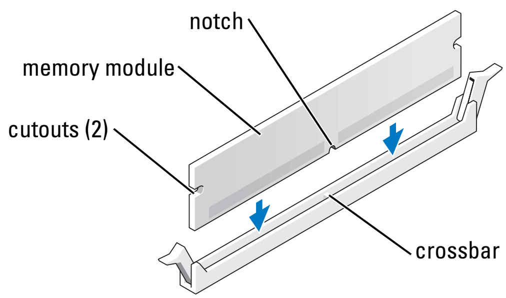
NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

1. Follow the procedures in "Before You Begin" on page 69.
2. Lay the computer on its side so that the system board is on the bottom of the inside of the computer.

3 Press out the securing clip at each end of the memory module connector.



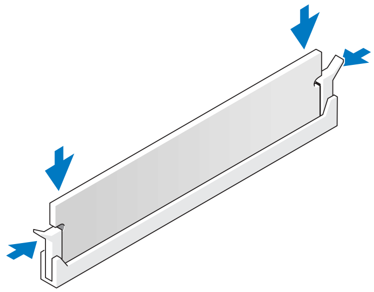
4 Align the notch on the bottom of the module with the crossbar in the connector.



NOTICE: To avoid damage to the memory module, press the module straight down into the connector while you apply equal force to each end of the module.

5 Insert the module into the connector until the module snaps into position.

If you insert the module correctly, the securing clips snap into the cutouts at each end of the module.



6 Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

7 Connect your computer and devices to electrical outlets, and turn them on.

8 Right-click the **My Computer** icon and click **Properties**.

9 Click the **General** tab.

10 To verify that the memory is installed correctly, check the amount of memory (RAM) listed.

Removing Memory

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

1 Follow the procedures in "Before You Begin" on page 69.

2 Press out the securing clip at each end of the memory module connector.

3 Grasp the module and pull up.

If the module is difficult to remove, gently ease the module back and forth to remove it from the connector.

Cards

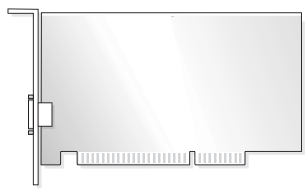
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Your Dell™ computer provides the following slots for PCI and PCI Express cards:

- Three PCI card slots
- One PCI Express x16 card slot
- One PCI Express x4 card slot
- One PCI Express x1 card slot

PCI Cards



If you are installing or replacing a card, follow the procedures in the next section. If you are removing but not replacing a card, see "Removing a PCI Card" on page 84.

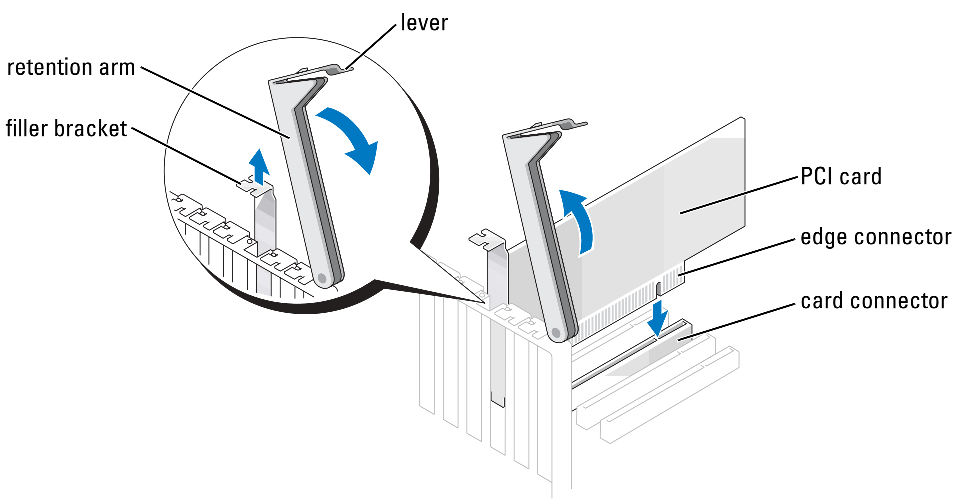
If you are replacing a card, remove the current driver for the card from the operating system.

If you are installing or replacing a PCI Express card, see "Installing a PCI Express Card" on page 86.

Installing a PCI Card

1 Follow the procedures in "Before You Begin" on page 69.

2 Press the lever on the card retention arm and raise the retention arm.



3 If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 5.

4 If you are replacing a card that is already installed in the computer, remove the card.

If necessary, disconnect any cables connected to the card. Grasp the card by its top corners, and ease it out of its connector.

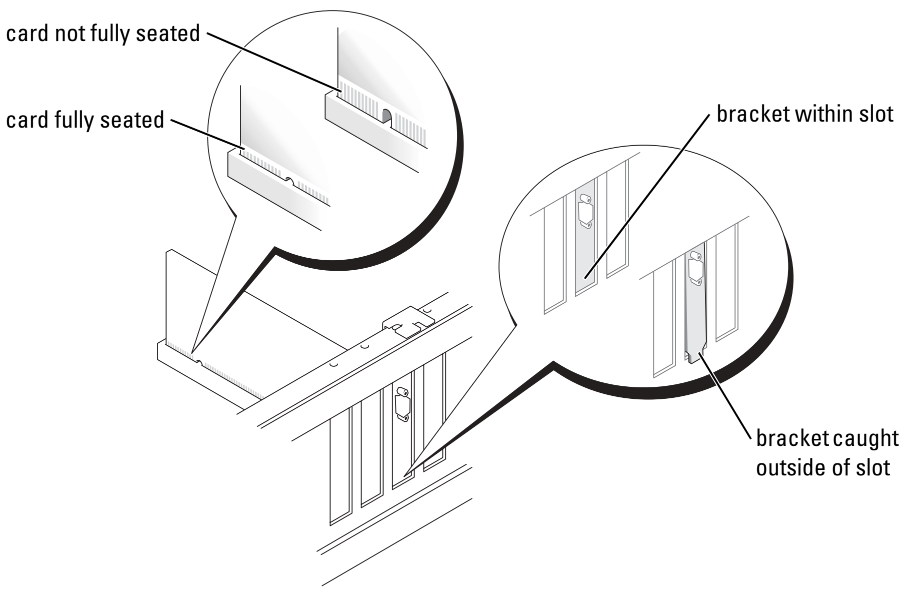
5 Prepare the card for installation.

See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

CAUTION: Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards.

6 Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

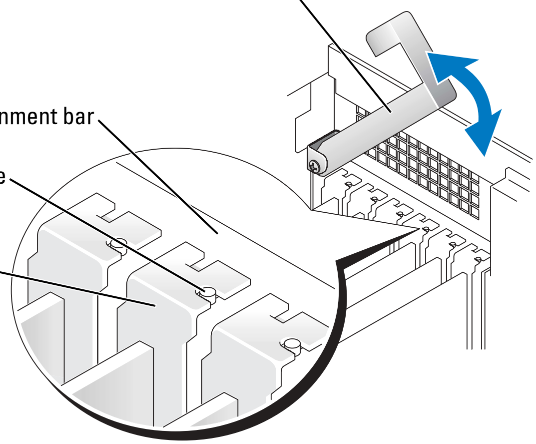
If the card is full-length, insert the end of the card into the card guide bracket as you lower the card toward its connector on the system board. Insert the card firmly into the card connector on the system board.



7 Before you lower the retention arm, ensure that:

- The tops of all cards and filler brackets are flush with the alignment bar.
- The notch in the top of the card or filler bracket fits around the alignment guide.

8 Press the retention arm into place, securing the card(s) in the computer.



NOTICE: Do not route card cables over or behind the cards. Cables routed over the cards can prevent the computer cover from closing properly or cause damage to the equipment.

9 Connect any cables that should be attached to the card.

See the documentation for the card for information about the card's cable connections.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

10 Close the computer cover, reconnect the computer and devices to electrical outlets, and then turn them on.

11 If you installed an add-in network adapter and you want to disable the integrated network adapter:

- a Enter system setup (see page 127), select **Integrated Devices,** and then change the setting for **Network Interface Card** to **Off**.
- b Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

12 Install any drivers required for the card as described in the card documentation.

Removing a PCI Card

1 Follow the procedures in "Before You Begin" on page 69.

2 Press the lever on the card retention arm and raise the retention arm.

3 If necessary, disconnect any cables connected to the card.

4 Grasp the card by its top corners, and ease it out of its connector.

5 If you are removing the card permanently, install a filler bracket in the empty card-slot opening.

If you need a filler bracket, contact Dell (see page 139).

NOTE: Installing filler brackets over empty card-slot openings is necessary to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.

6 Lower the retention arm and press it into place, securing the card(s) in the computer.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

7 Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

8 Remove the card's driver from the operating system.

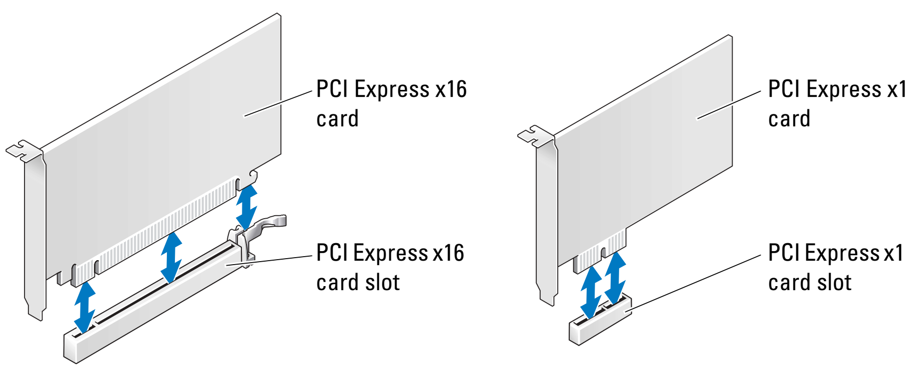
9 If you removed an add-in network connector and want to enable the integrated network adapter:

a Enter system setup, select **Integrated Devices**, and then change the setting for **Network Interface Card** to **On**.

b Connect the network cable to the integrated connector on the back panel of the computer.

PCI Express Cards

Your computer supports one PCI Express x16 card, one PCI Express x4 card, and one PCI Express x1 card.



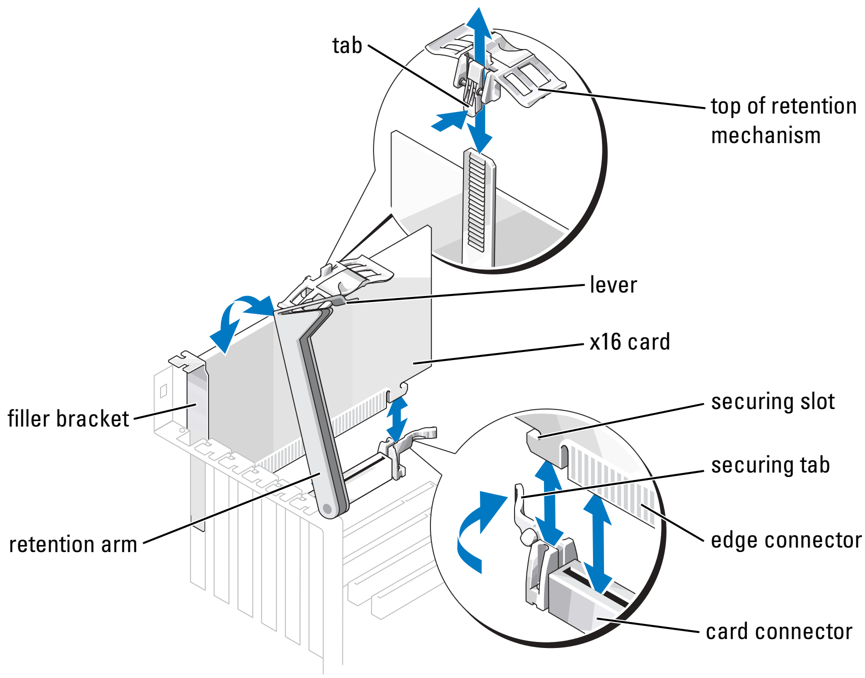
If you are installing or replacing a PCI Express card, follow the procedures in the next section. If you are removing but not replacing a PCI Express card, see "Removing a PCI Express Card" on page 89.

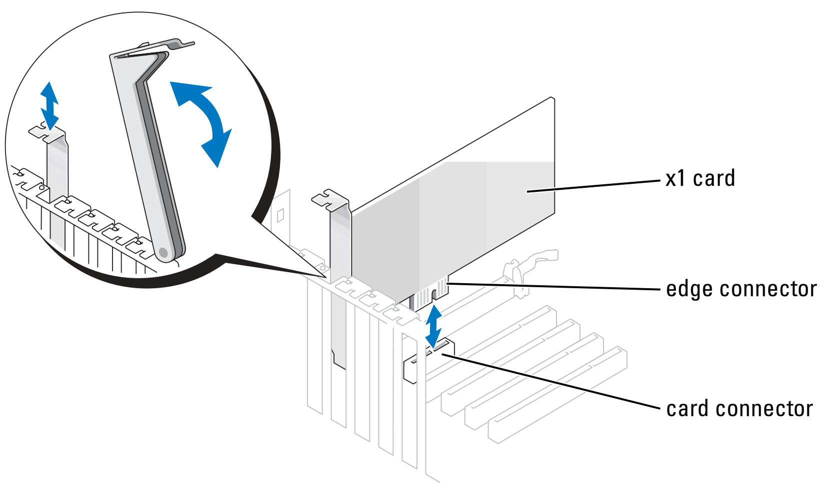
If you are replacing a card, remove the current driver for the card from the operating system.

If you are installing or replacing a PCI card, see "Installing a PCI Card" on page 82.

Installing a PCI Express Card

1. Follow the procedures in "Before You Begin" on page 69.
2. Press the lever on the card retention arm and raise the retention arm.





3 If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 5.

4 If you are replacing a card that is already installed in the computer, remove the card.

If necessary, disconnect any cables connected to the card. If your card includes a retention mechanism, remove the top of the retention mechanism by pressing the tab and pulling up on the top. Gently pull the securing tab, grasp the card by its top corners, and ease it out of its connector.

5 Prepare the card for installation.

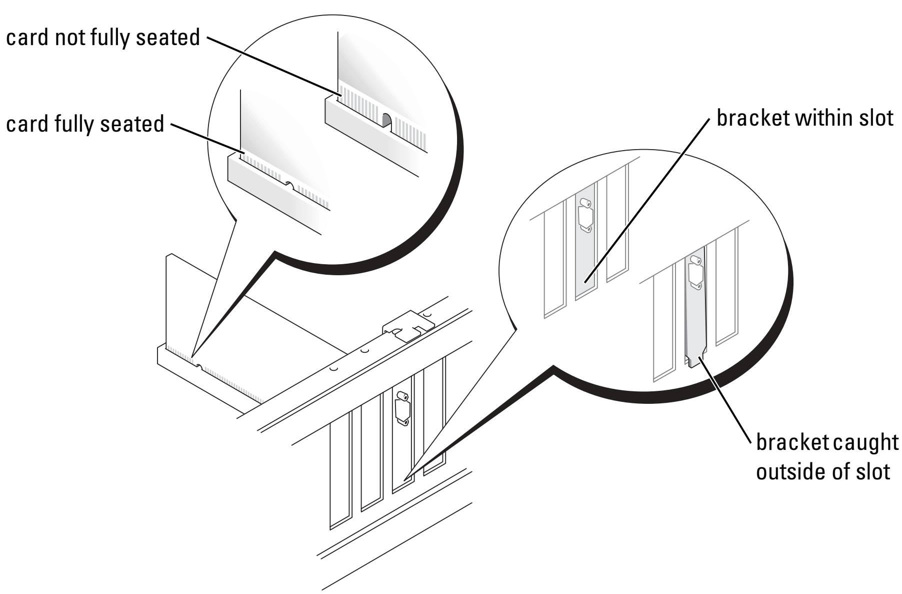
See the documentation that came with the card for information on configuring the card, making internal connections, or otherwise customizing it for your computer.

CAUTION: Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards.

6 If you are installing the card into the x16 card connector, position the card so the securing slot is aligned with the securing tab, and gently pull the securing tab.

7 Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

If the card is full-length, insert the end of the card into the card guide bracket as you lower the card toward its connector on the system board. Insert the card firmly into the card connector on the system board.

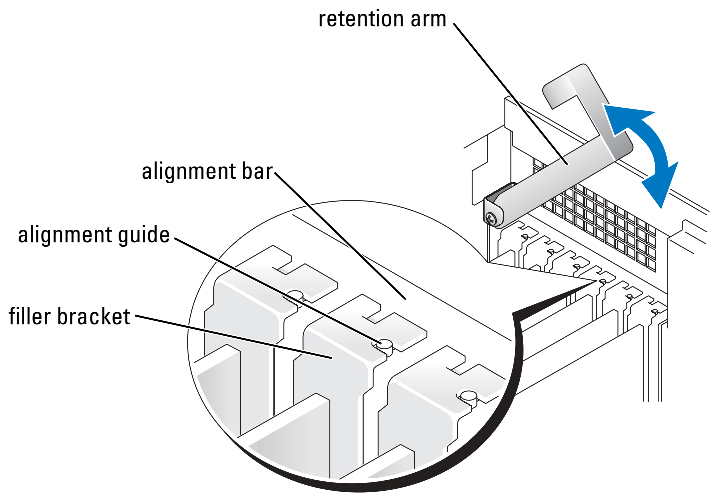


8 If you replaced a card that was already installed in the computer and you removed the top of the retention mechanism, you can reinstall the top.

9 Before you lower the retention arm, ensure that:

- The tops of all cards and filler brackets are flush with the alignment bar.
- The notch in the top of the card or filler bracket fits around the alignment guide.

10 Press the retention arm into place, securing the card(s) in the computer.



NOTICE: Do not route card cables over or behind the cards. Cables routed over the cards can prevent the computer cover from closing properly or cause damage to the equipment.

11 Connect any cables that should be attached to the card.

See the documentation that came with the card for information about the card's cable connections.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

12 Close the computer cover, reconnect the computer and devices to electrical outlets, and then turn them on.

13 If you installed an add-in network adapter and you want to disable the integrated network adapter:

a Enter system setup (see page 127), select **Network Controller,** and then change the setting to **Off**.

b Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.

14 Install any drivers required for the card as described in the card documentation.

Removing a PCI Express Card

1 Follow the procedures in "Before You Begin" on page 69.

2 Press the lever on the card retention arm and raise the retention arm.

3 If necessary, disconnect any cables connected to the card.

4 If your card includes a retention mechanism, remove the top of the retention mechanism by pressing the tab and pulling up on the top.

5 Gently pull back the securing tab, grasp the card by its top corners, and then ease it out of its connector.

6 If you are removing the card permanently, install a filler bracket in the empty card-slot opening.

If you need a filler bracket, contact Dell (see page 139).

NOTE: Installing filler brackets over empty card-slot openings is necessary to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.

7 Lower the retention arm and press it into place, securing the card(s) in the computer.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

8 Close the computer cover, reconnect the computer and devices to electrical outlets, and then turn them on.

9 Remove the card's driver from the operating system.

10 If you removed an add-in network connector:

a Enter system setup (see page 128), select **Network Controller**, and then change the setting to **On**.

b Connect the network cable to the integrated connector on the back panel of the computer.

11 Install any drivers required for the card as described in the card documentation.

Serial Port Adapters

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Installing a Serial Port Adapter

1 Follow the procedures in "Before You Begin" on page 69.

2 Press the lever on the card retention arm and raise the retention arm.

3 Remove the filler bracket.

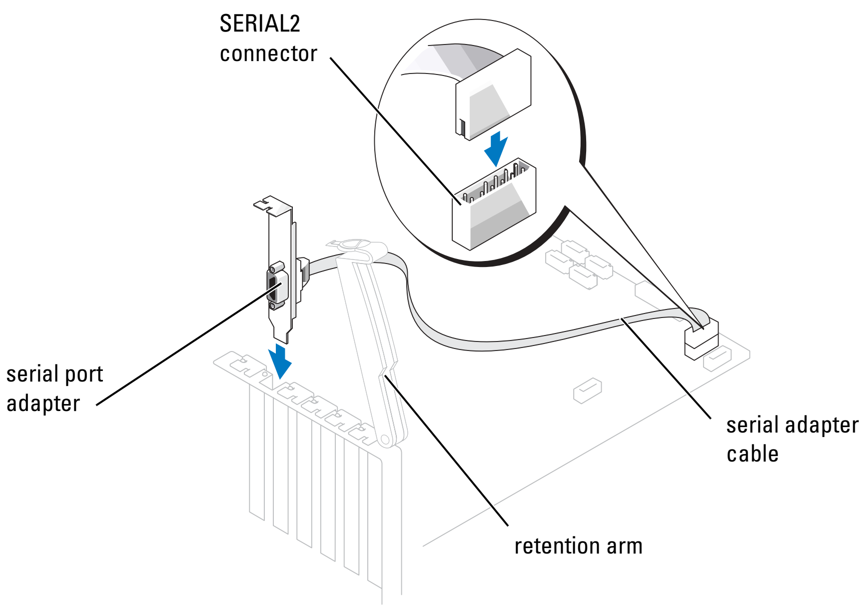
4 Slide the serial port adapter bracket down over the card-slot opening.

NOTE: The serial port adapter should be installed in an used PCI slot. The PCI expansion card slots are labeled "4" through "6."

5 Before you lower the retention arm, ensure that:

- The tops of all cards and filler brackets are flush with the alignment bar.
- The notch in the top of the card or filler bracket fits around the alignment guide.

6 Press the retention arm into place, securing the card(s) in the computer.



7 Attach the serial adapter cable to the SERIAL2 connector on the system board.

8 Close the computer cover, reconnect the computer and devices to electrical outlets, and then turn them on.

Removing a Serial Port Adapter

1 Follow the procedures in "Before You Begin" on page 69.

2 Disconnect the serial adapter cable from the SERIAL2 connector on the system board.

3 Raise the retention arm.

4 Lift and remove the adapter bracket.

5 If you are removing the adapter permanently, install a filler bracket in the empty card-slot opening.

If you need a filler bracket, contact Dell (see page 139).

NOTE: Installing filler brackets over empty card-slot openings is necessary to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.

6 Lower the retention arm and press it into place, securing the card(s) in the computer.

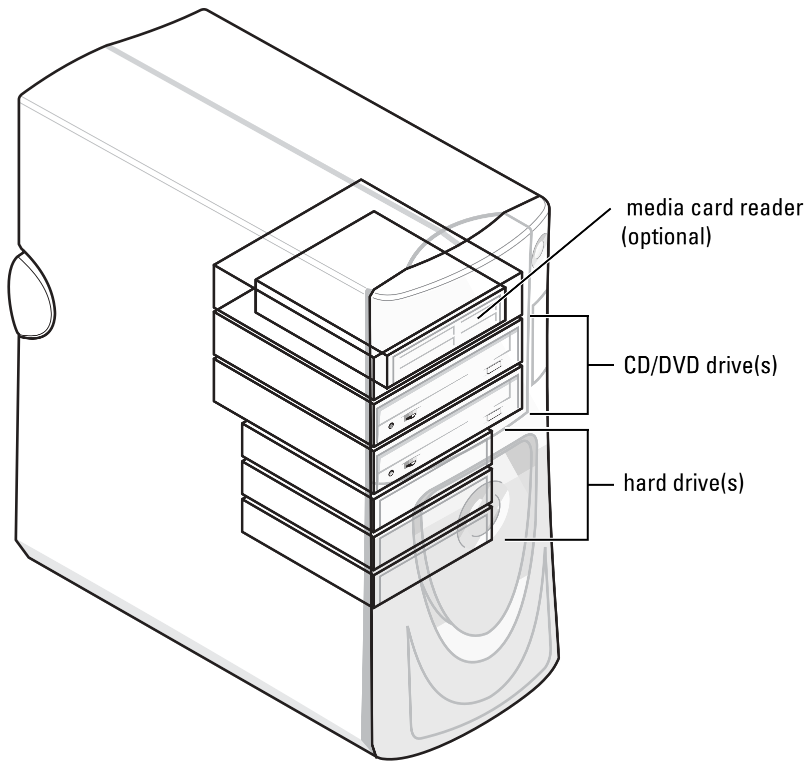
NOTICE: To connect a network cable, first plug the cable into the network wall jack, and then plug it into the computer.

7 Close the computer cover, reconnect the computer and devices to electrical outlets, and then turn them on.

Drives

Your computer supports a combination of these devices:

- Up to three hard drives
- Optional floppy drive
- Up to two CD or DVD drives
- Optional media card reader



General Installation Guidelines

Connect serial ATA hard drives to the SATA0 - SATA3 connectors on the system board. Connect CD/DVD drives to the IDE connector.

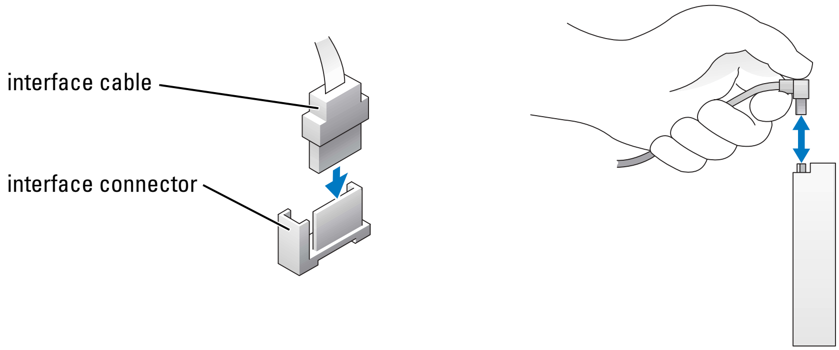
When you connect two IDE devices to a single IDE interface cable and configure them for the cable select setting, the device attached to the last connector on the interface cable is the primary or the boot device (drive 0), and the device attached to the middle connector on the interface cable is the secondary device (drive 1). See the drive documentation in your upgrade kit for information on configuring devices for the cable select setting.

Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and a data cable—to the back of the drive and to the system board. Some drives may also have an audio connector; one end of the audio cable attaches to the drive connector and the other end attaches to the system board.

Drive Interface Connectors

Serial ATA Connector



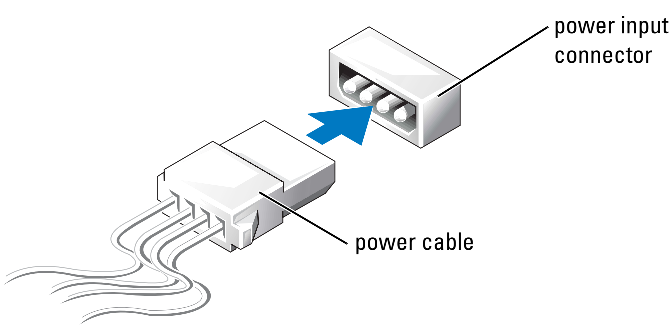
Most interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector.

When you connect an IDE cable, ensure that you align the colored stripe with the pin 1 connector. When you disconnect an IDE cable, grasp the colored pull tab and pull until the connector detaches.

When connecting and disconnecting a serial ATA cable, hold the cable by the connector at each end.

NOTE: The system board serial ATA connector may have an attached cover or shroud.

Power Cable Connector



Hard Drive

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

NOTICE: To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

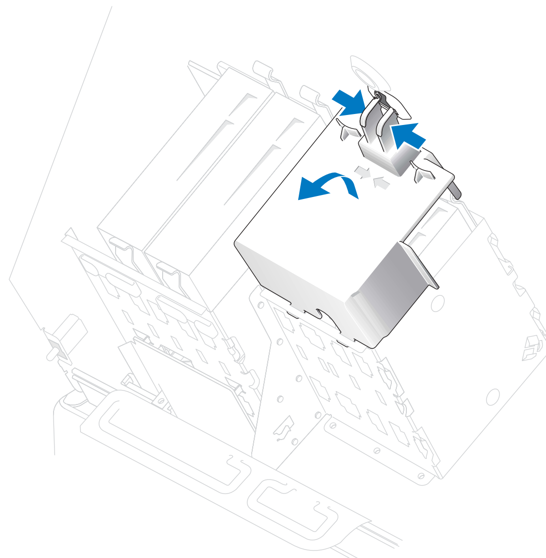
1 If you are replacing a hard drive that contains data you want to keep, back up your files before you remove the hard drive.

2 Follow the procedures in "Before You Begin" on page 69.

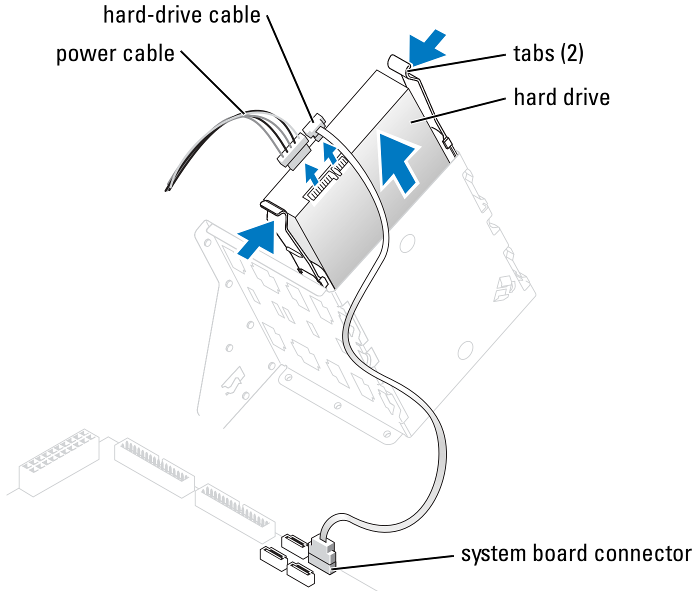
Removing a Hard Drive

1 Press in on the top shroud tabs and tilt the shroud back.

2 Lift the shroud away from the hard drive.



3 Disconnect the power and hard-drive cables from the drive and from the system board.



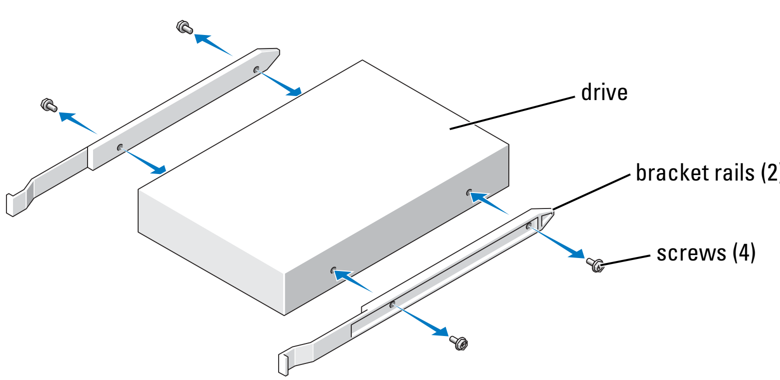
4 Press in on the tabs on each side of the drive and slide the drive up and out.

Installing a Hard Drive

1 Unpack the replacement hard drive, and prepare it for installation.

2 Check the documentation for the drive to verify that it is configured for your computer.

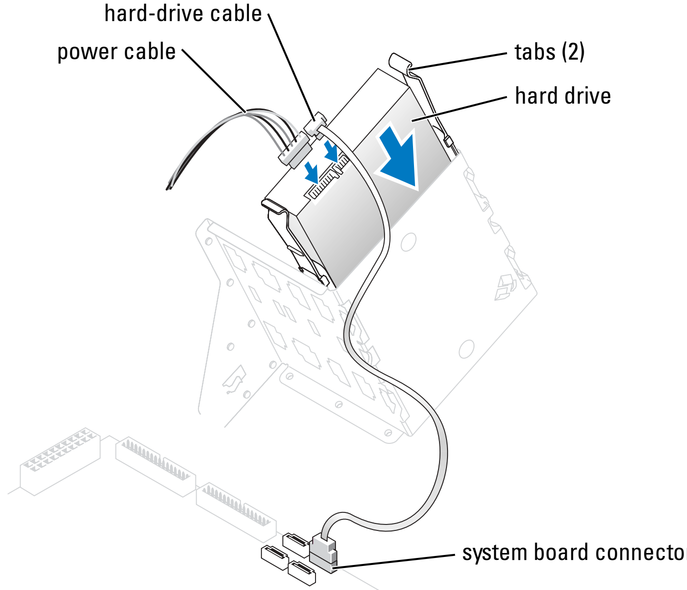
3 If your replacement hard drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket rails to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).



4 Install the hard drive into the computer by gently sliding the drive into place until the tabs securely click into position.

NOTE: If you are installing a hard drive in the lower bay, place the drive in the bay so that the power connector is on the left-hand side (opposite of the top hard drive)

.



5 Connect a power cable to the drive.

6 Connect the hard-drive cable to the drive and to the system board (see page 77).

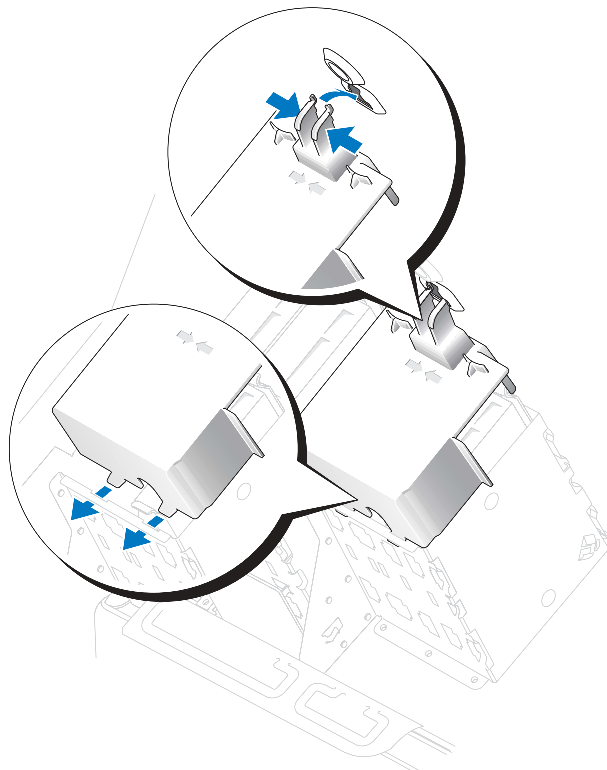
7 Check all connectors to be certain that they are properly cabled and firmly seated.

NOTICE: When replacing the hard-drive shroud, ensure that all the cables are properly routed.

8 Insert the bottom tabs of the shroud in to the holes on the drive cage and rotate the shroud up.

9 Press in on the top tabs and lock them in to place.

10 Gently press on the shroud to ensure it is secure.



11 Close the computer cover (see page 121).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

12 Connect your computer and devices to electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

13 If the drive you just installed is the primary drive, insert a bootable floppy disk into drive A.

14 Turn on the computer.

15 Enter system setup (see page 128), and update the appropriate **Drive** option.

16 Exit system setup, and restart the computer.

17 Partition and logically format your drive before you proceed to the next step.

See the documentation for your operating system for instructions.

18 Test the hard drive by running the Dell Diagnostics (see page 58).

19 If the drive you just installed is the primary drive, install your operating system on the hard drive.

Adding a Second Hard Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

1 Check the documentation for the drive to verify that it is configured for your computer.

2 Follow the procedures in "Before You Begin" on page 69.

3 Remove the two plastic rails from the inside of the hard-drive bay by gently pulling the rails up and out of the bay.

4 Attach the rails to the hard drive using the two screws attached to the rails.

Ensure that the rail tabs are positioned at the back of the hard drive.

NOTICE: Do not install any drive into the lower hard-drive bay until you have removed the green drive rails from the inside of the hard-drive bay.

5 Remove the first hard drive from the upper bay and install it in the lower bay:

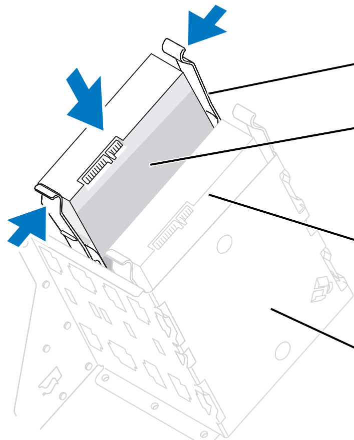
a Disconnect the power and the hard-drive cables from the back of the first hard drive.

b Press in the two rail tabs and pull the first hard drive out of the upper bay.

c Gently slide the first hard drive into the lower bay until it clicks into place.

d Reconnect the power and hard-drive cables to the back of the first hard drive.

6 Gently slide the new hard drive into the upper bay until it clicks into place.



7 Connect a power cable to the drive.

8 Connect the hard-drive cable to the drive and to the system board (see page 77).

9 Close the computer cover (see page 121).

NOTICE: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

10 Connect your computer and devices to their electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

Floppy Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

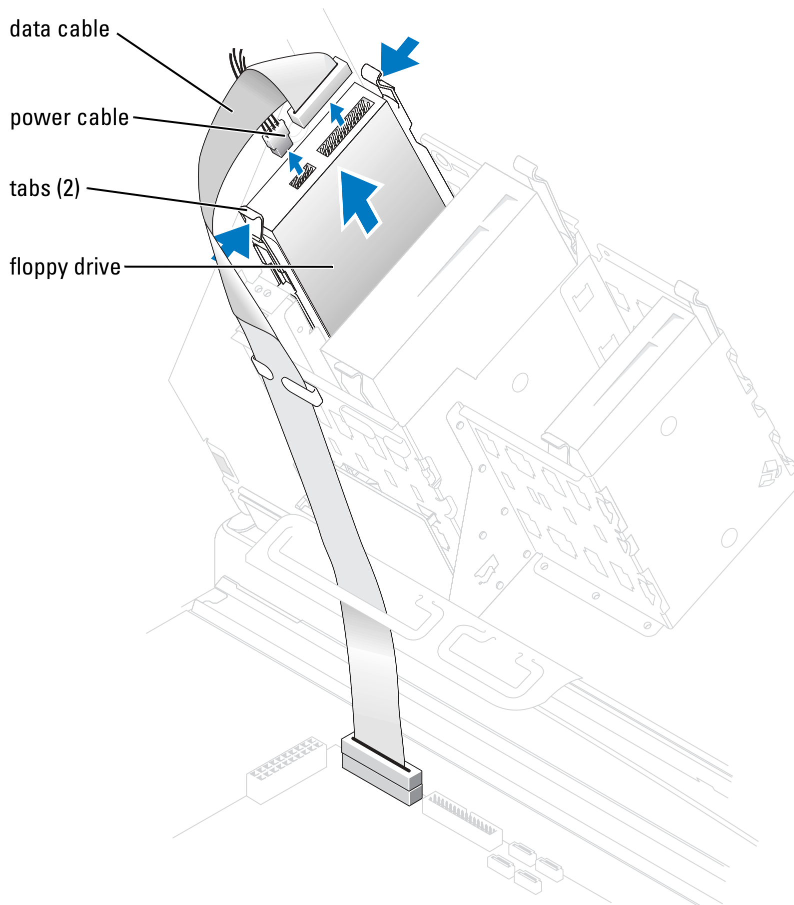
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

Removing a Floppy Drive

1 Follow the procedures in "Before You Begin" on page 69.

2 Disconnect the power and data cables from the back of the floppy drive.

3 Disconnect the other end of the data cable from the system board.

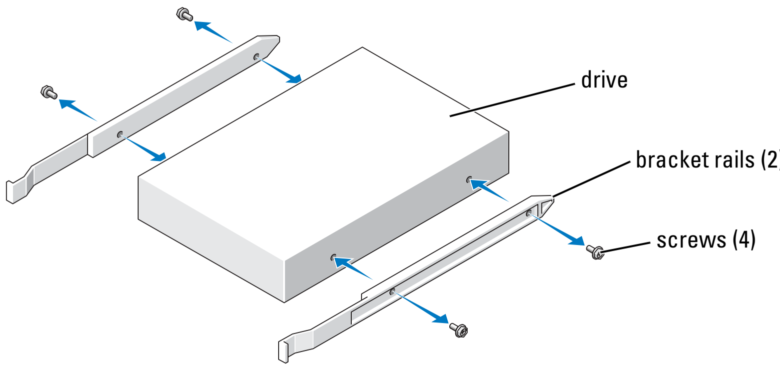


4 Press inward on the two tabs on the sides of the drive, slide the drive upward, and remove it from the floppy-drive bay.

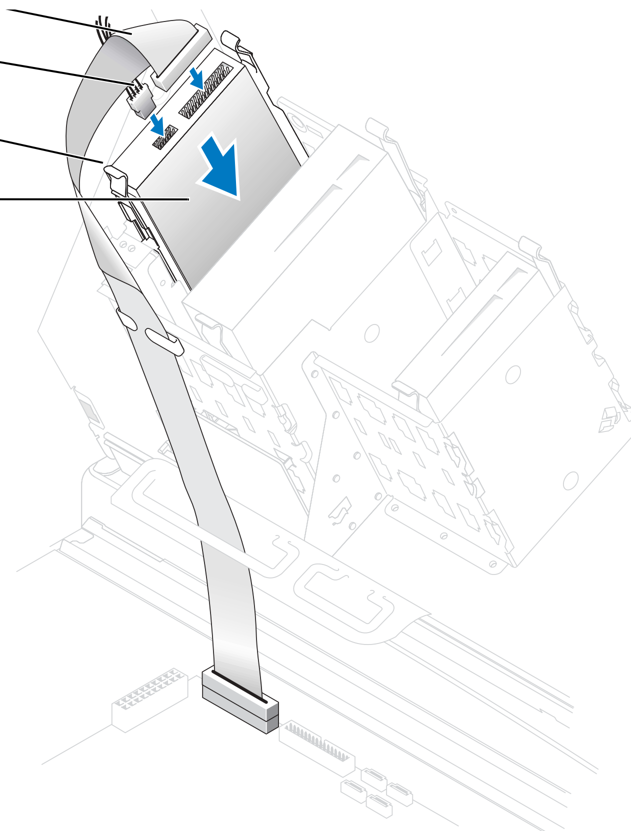
Installing a Floppy Drive

1 Follow the procedures in "Before You Begin" on page 69.

2 If you are replacing a drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).



3 Gently slide the drive into place until the tabs securely click into position.



4 Attach the power and data cables to the floppy drive.

5 Connect the other end of the data cable to the DSKT connector on the system board (see page 77).

6 Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.

7 Close the computer cover (see page 121).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

8 Connect your computer and devices to electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

9 Enter system setup (see page 127) and update the appropriate **Diskette Drive** option.

10 Verify that your computer works correctly by running the Dell Diagnostics (see page 58).

Media Card Reader

For information on using the media card reader, see "Using a Media Card Reader (Optional)" on page 15.

Removing a Media Card Reader

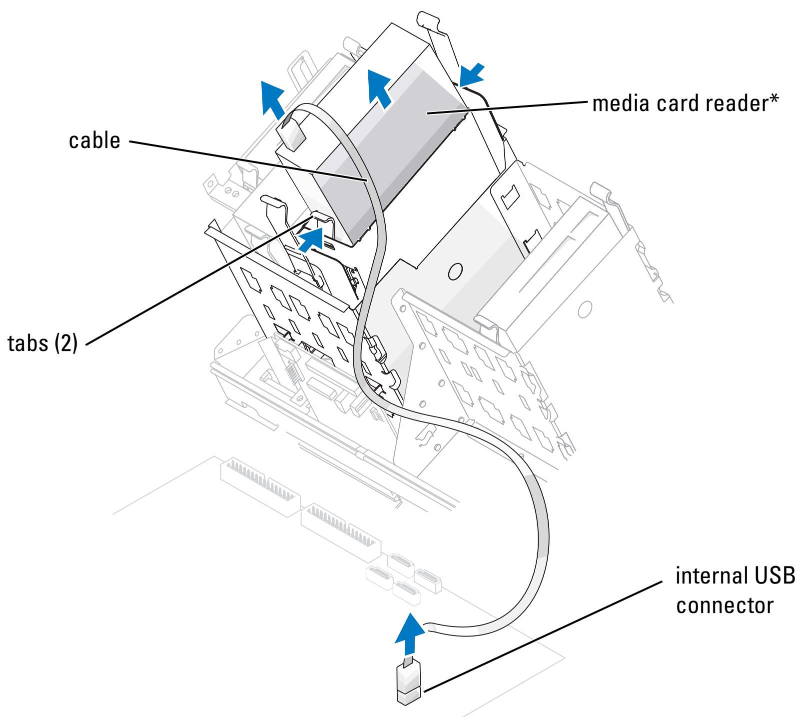
⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

1 Follow the procedures in "Before You Begin" on page 69.

2 Lay the computer on its side so that the system board is on the bottom of the inside of the computer.

3 Open the computer cover (page 75).



*Not present on certain computers.

4 Disconnect the USB cable on the back of the media card reader to the internal USB connector on the system board.

5 Press in on the tabs on each side of the media card reader and slide the card reader out of the adapter.

6 Close the computer (see page 121).

Installing a Media Card Reader

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

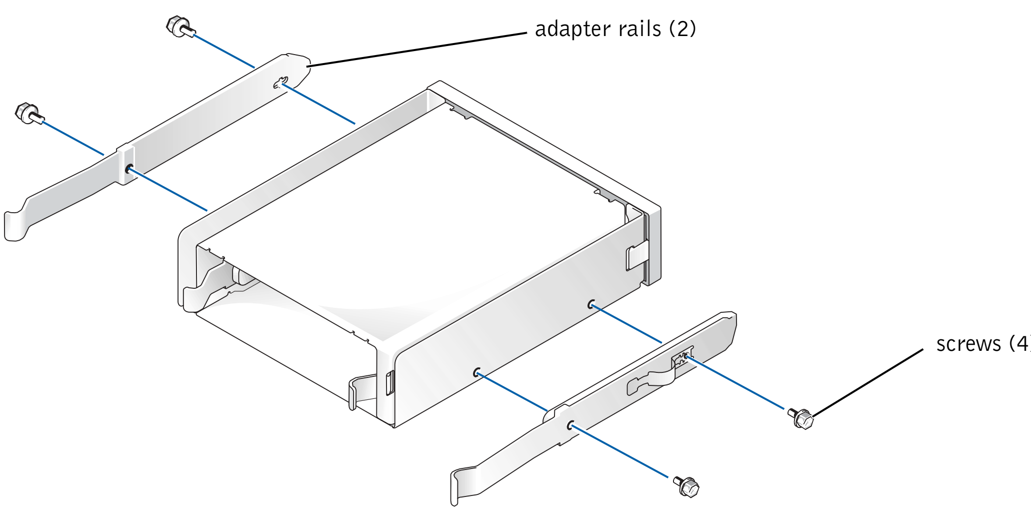
1 Follow the procedures in "Before You Begin" on page 69.

2 Lay the computer on its side so that the system board is on the bottom of the inside of the computer.

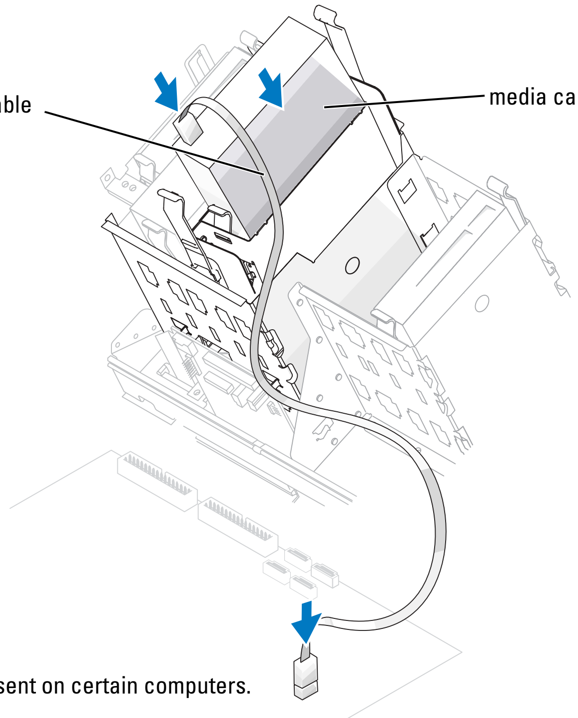
3 Open the computer cover (see page 75).

4 Remove the media card reader and bracket from its packaging.

5 Attach the adapter rails to the adapter by aligning the screw holes on the adapter with the screw holes on the rails and then inserting and tightening all four screws (two on each rail).



6 Slide the adapter into the 5.25-inch drive bay until the tabs on the rails securely click into position.



7 Slide the media card reader into the adapter until the tabs on the rails securely click into position.

8 Connect the internal USB cable to the media card reader

9 Route the USB cable through the cable routing clip.

10 Connect the internal USB cable to the internal USB connector on the system board.

11 Close the computer cover (see page 121).

CD/DVD Drive

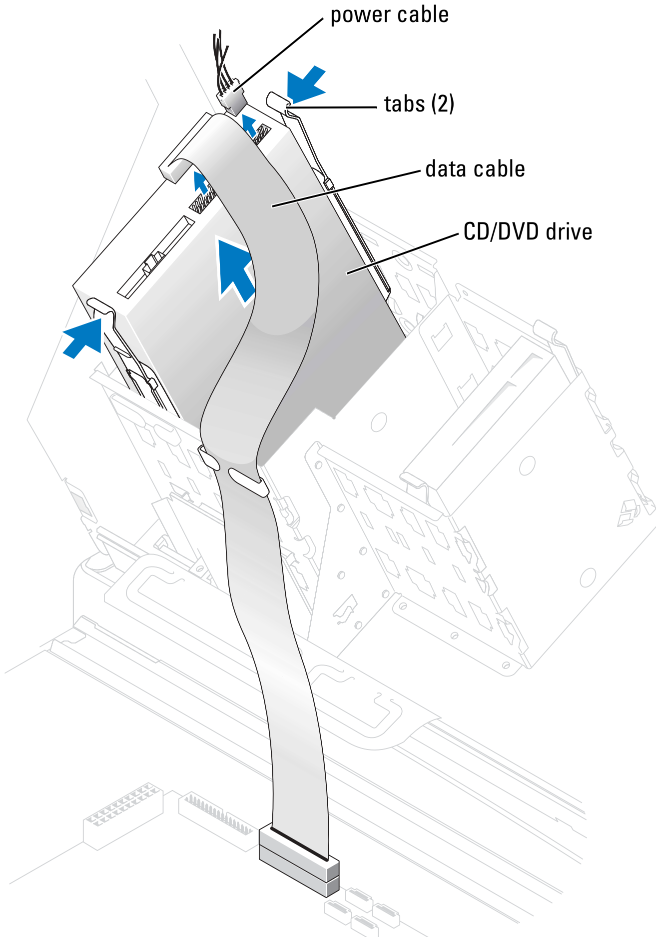
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

Removing a CD/DVD Drive

1 Follow the procedures in "Before You Begin" on page 69.

2 Disconnect the power and data cables from the back of the drive.



3 Press inward on the two tabs on the sides of the drive, and then slide the drive upward and remove it from the drive bay.

Installing a CD/DVD Drive

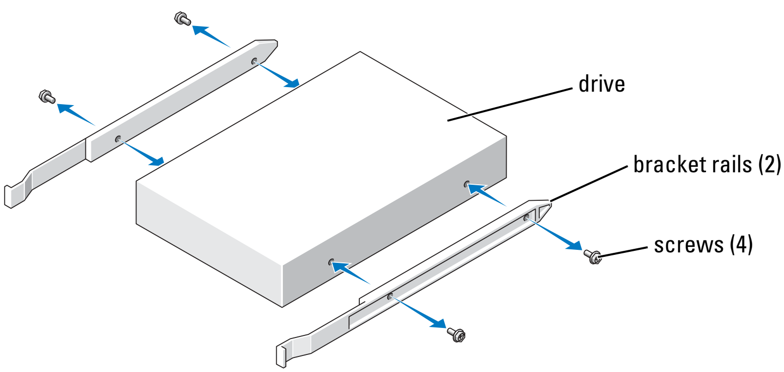
1 Follow the procedures in "Before You Begin" on page 69.

2 If you are installing a new drive, unpack the drive and prepare it for installation.

   Check the documentation that accompanied the drive to verify that the drive is configured for your computer. If you are installing an IDE drive, configure the drive for the cable select setting.

3 Connect the new drive to the set of rails that are attached to the inside of the cover. If a set of rails is not attached inside the computer cover, call Dell (see page 139).

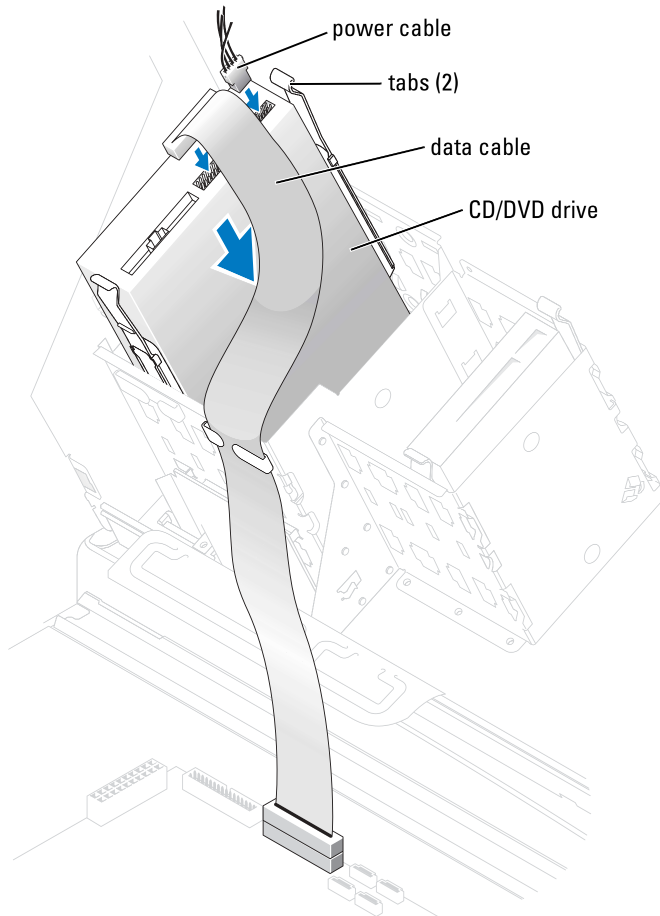
4 If you are installing a replacement drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).



5 Gently slide the drive into place until the tabs securely click into position.

6 Connect the power and data cables to the drive.

   If you are adding a drive that has an audio cable, connect the audio cable to the audio connector on the system board.



7 Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.

8 Close the computer cover (see page 121).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

9 Connect your computer and devices to electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

10 Enter system setup (see page 128) and select the appropriate **Drive** option.

11 Verify that your computer works correctly by running the Dell Diagnostics (see page 58).

Processor Airflow Shroud

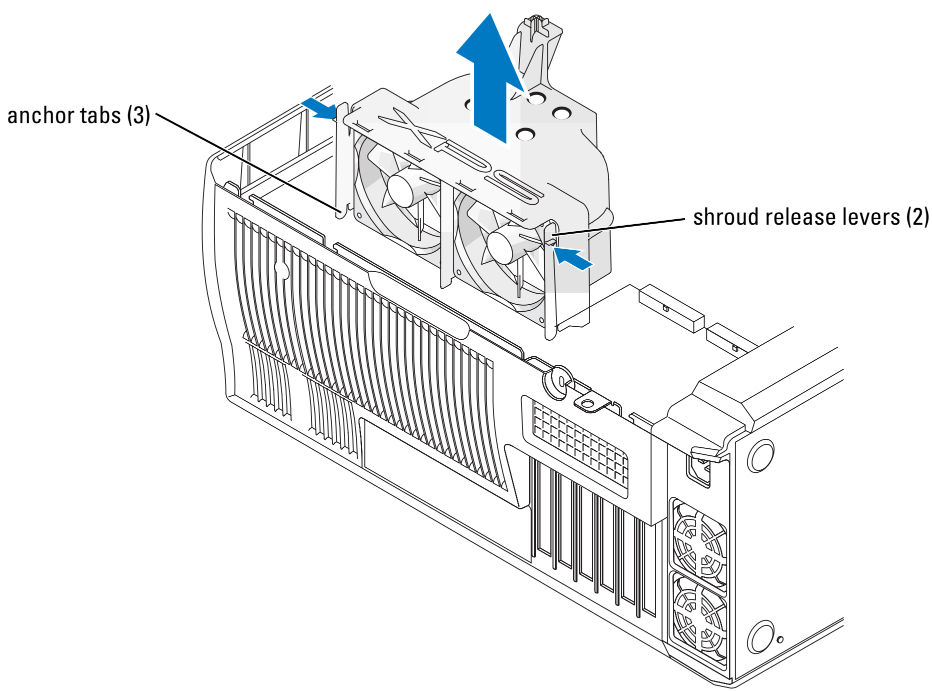
CAUTION: Before you perform this procedure, follow the safety instructions located in the *Product Information Guide*.

CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

NOTICE: To avoid damaging the fan power cables, do not slide the shroud too quickly.

Removing the Processor Airflow Shroud

1. Follow the procedures in "Before You Begin" on page 69.
2. Press the two shroud release levers and lift the shroud up to disengage the anchors.
3. Once the shroud has been disengaged from the anchors, unplug the fan cables from their connectors on the system board.



Installing the Processor Airflow Shroud

1. Attach both fan power cables to the connectors on the system board.
2. Align the anchor tabs with the securing slots.
3. Gently press the shroud until the anchor tabs snap securely into place.
4. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

5. Connect your computer and devices to electrical outlets, and turn them on.

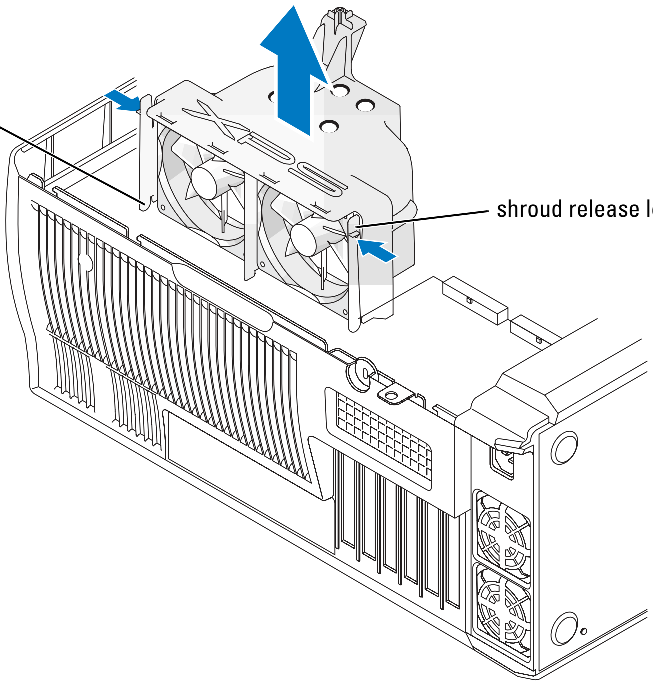
Processor

NOTICE: Do not perform the following steps unless you are familiar with hardware removal and replacement. Performing these steps incorrectly could damage your system board. For technical service, see "Dell Technical Support Policy (U.S. Only)" on page 137.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Removing the Processor

1. Follow the procedures in "Before You Begin" on page 69.
2. Disconnect the two cooling fan power cables from the FANREAR and FANCPU connectors (see "System Board Components" on page 77) on the system board.
3. Disconnect the power cable from the POWER12V connector (see "System Board Components" on page 77) on the system board.
4. Remove the airflow shroud.



CAUTION: The heat sink can get very hot during normal operation. Be sure that the heat sink has had sufficient time to cool before you touch it.

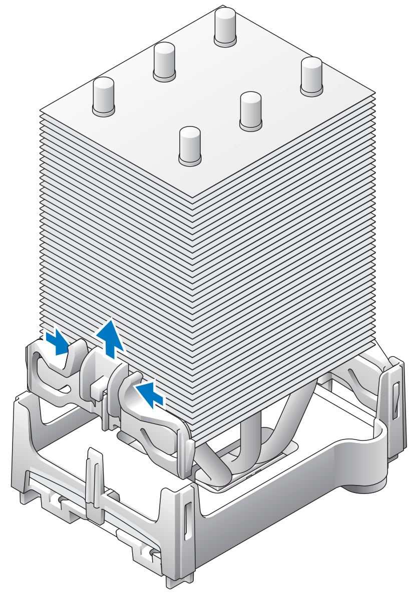
5 Remove the heat sink:

a Remove the retention module clips. Press the tabs toward the center of the clip and lift.

b On the retention base locate the tab opposite the power supply. Press on the retention base tab until the heat sink pops up slightly.

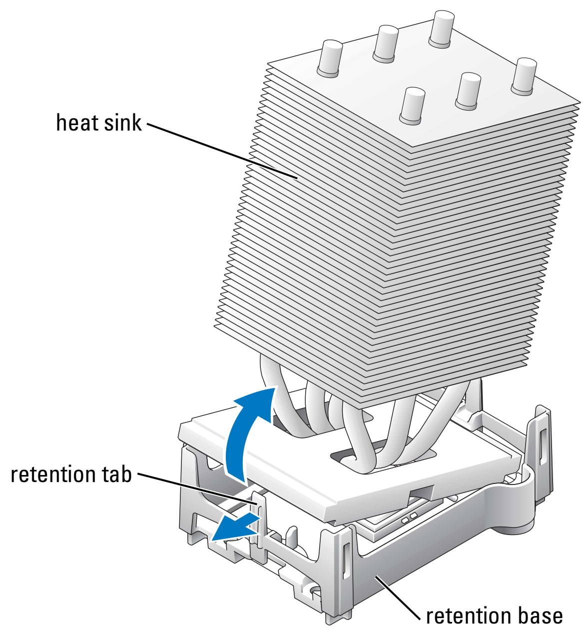
c Press out on the second retention tab while lifting the heat sink up and out of the retention base.

NOTICE: Lay the heat sink down on its side.

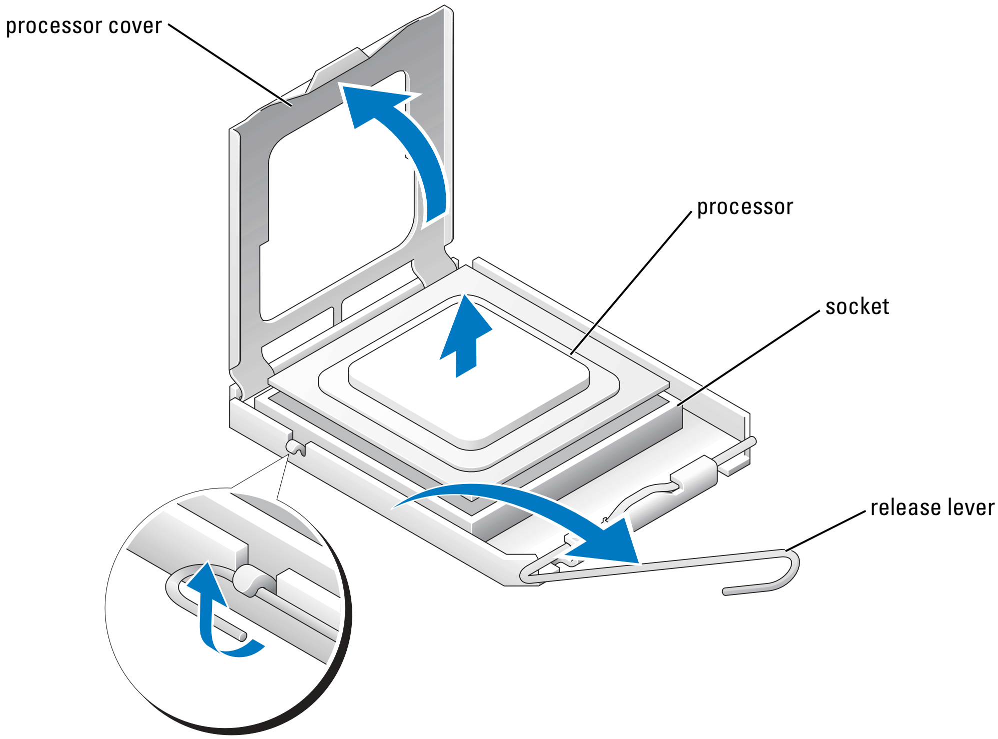


NOTICE: If you are installing a processor upgrade kit from Dell, discard the original heat sink. If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink and blower when you install your new processor.

6 Push down and out on the socket release lever.



7 Open the processor cover.



8 Remove the processor from the socket.

Leave the release lever extended in the release position so that the socket is ready for the new processor.

Installing the Processor

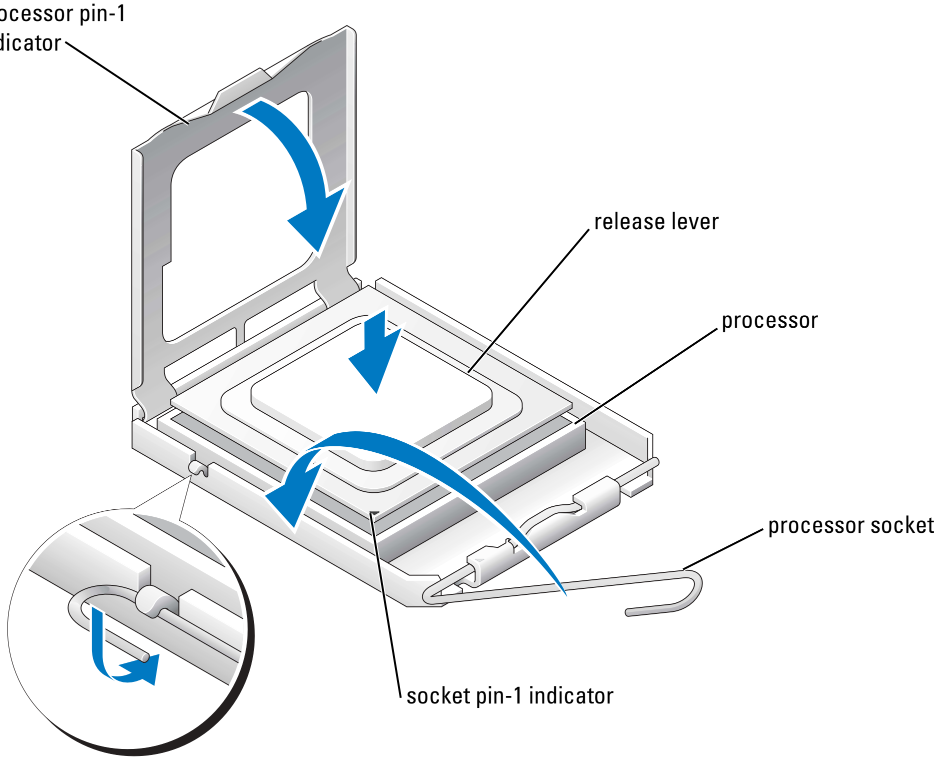
NOTICE: Ground yourself by touching an unpainted metal surface on the back of the computer.

1 Unpack the new processor.

NOTICE: You must position the processor correctly in the socket to avoid permanent damage to the processor and the computer when you turn on the computer.

2 If the release lever on the socket is not fully extended, move it to that position.

3 Align the pin-1 corner of the processor and socket.



NOTICE: Socket pins are delicate. To avoid damage, ensure that the processor is aligned properly with the socket, and do not use excessive force when you install the processor. Be careful not to touch or bend the pins on the system board.

4 Set the processor lightly in the socket and ensure that the processor is level in the socket. When the processor is positioned correctly, press it with minimal pressure to seat it.

5 When the processor is fully seated in the socket, close the processor cover.

6 Pivot the socket release lever back toward the socket and snap it into place to secure the processor.

NOTICE: If you are *not* installing a processor upgrade kit from Dell, reuse the original heat sink assembly when you replace the processor.

If you installed a processor replacement kit from Dell, return the original heat sink assembly and processor to Dell in the same package in which your replacement kit was sent.

7 Install the heat sink:

a Slide one end of the heat sink under the retention tab.

b Pull out the other retention tab and lower the heat sink until it fits securely in the base.

NOTICE: Ensure that the heat sink is correctly seated and secure.

8 Reinstall the retention module clips.

9 Lower the airflow shroud over the heat sink.

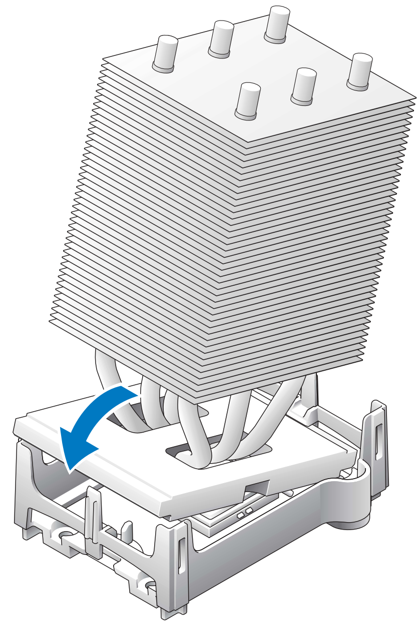
10 Reconnect the two cooling fan power cables to the FANREAR and FANCPU connectors (see "System Board Components" on page 77) on the system board.

11 Reconnect the power cable to the POWER12V connector (see "System Board Components" on page 77) on the system board.

12 Close the computer cover (see page 121).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

13 Connect your computer and devices to electrical outlets, and turn them on.



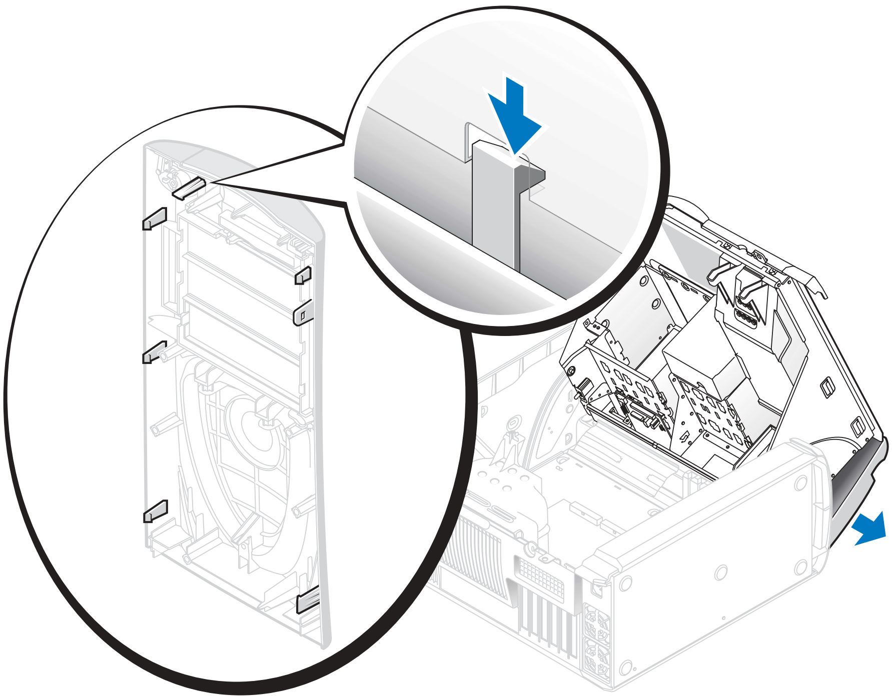
Front Panel

CAUTION: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Removing the Front Panel

1. Follow the procedures in "Before You Begin" on page 69.
2. Disconnect and remove all disk drives (see page 91).
3. Release the front panel by pressing each of the seven front-panel release tabs.



4. Close the computer cover halfway and pull the front panel away from the computer.

Replacing the Front Panel

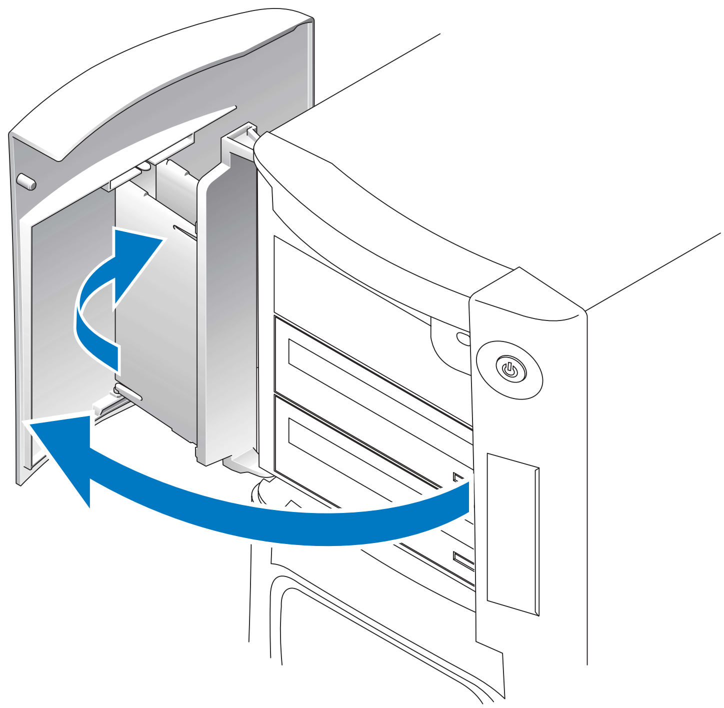
To replace the front panel, perform the removal procedure in reverse order.

Drive Door

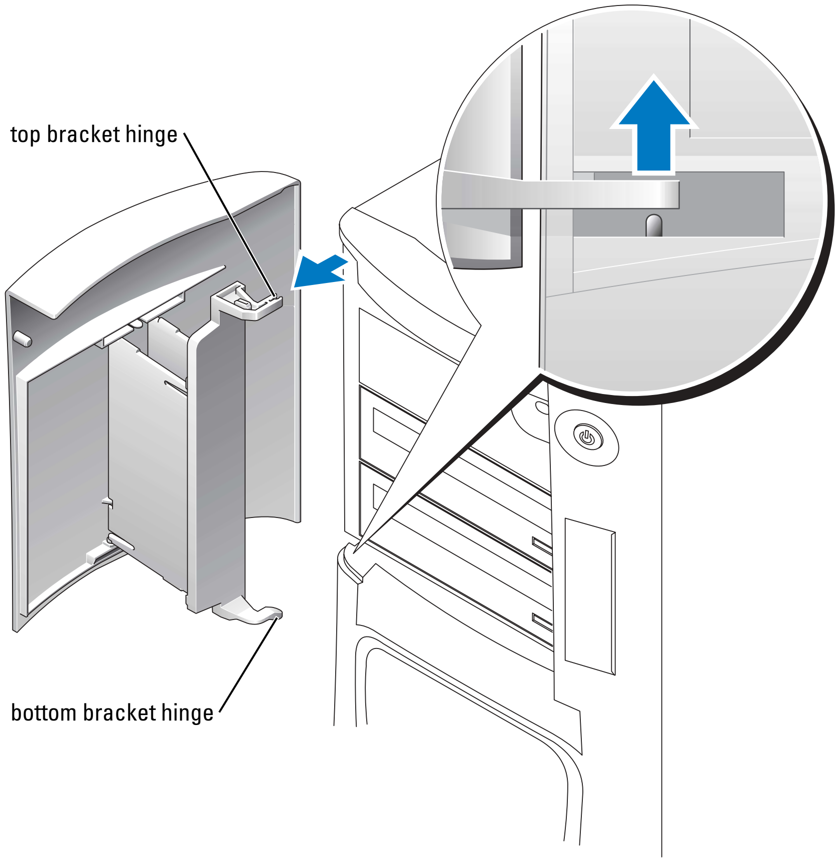
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Removing the Drive Door

1 Open the drive door.



2 Unsnap the top bracket hinge and pull the top of the drive door outward, away from the computer.



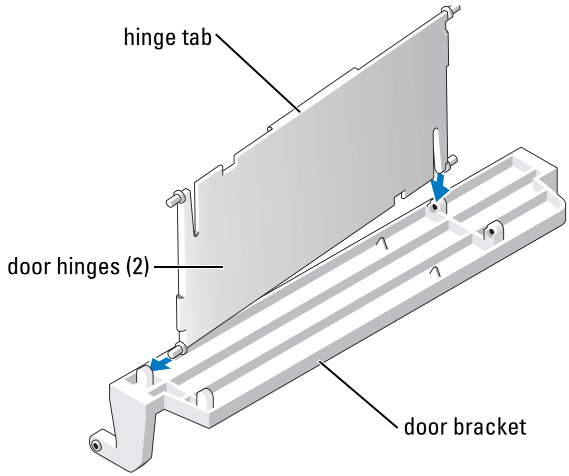
3 Lift the bottom bracket hinge away from the computer.

Replacing the Drive Door

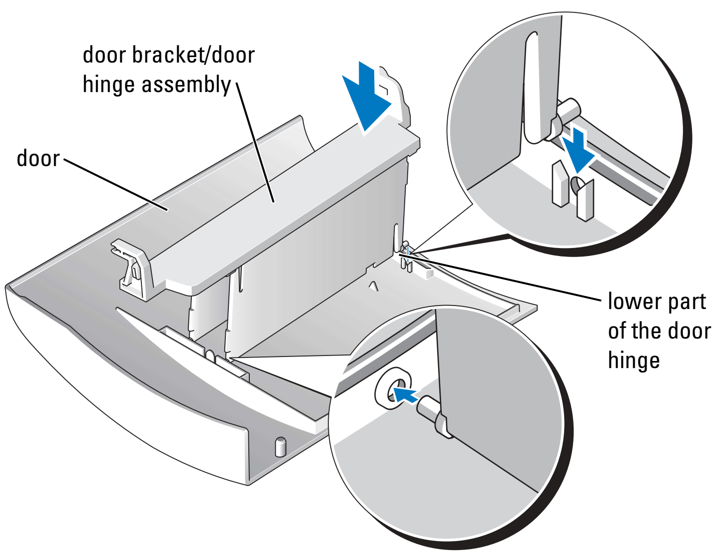
To prevent damage to your computer, the drive door is designed to "break away" from the computer if it is opened too far. If the drive door detaches from the computer without disassembling, perform the removal procedure in reverse.

If the drive door is open and it is opened too far, instead of breaking away from the computer in one piece, the drive door may disassemble into several smaller pieces. If the drive door disassembles:

1 If necessary, reattach the door hinges to the door bracket. Ensure that the hinge tabs are away from the door bracket.



2 Attach the door bracket/door hinge assembly to the door, starting with the lower part of each door hinge.



Battery

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.**

NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

Replacing the Battery

A coin-cell battery maintains computer configuration, date, and time information. The battery can last several years.

If you have to repeatedly reset time and date information after turning on the computer, replace the battery.

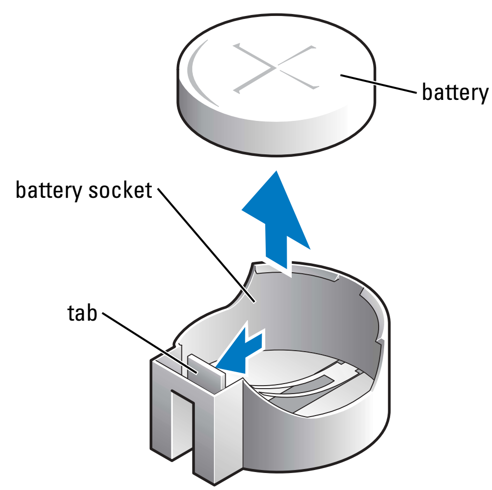
⚠ **CAUTION: A new battery can explode if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.**

To replace the battery:

1. Record all the screens in system setup (see page 127) so that you can restore the correct settings in step 8.
2. Follow the procedures in "Before You Begin" on page 69.
3. Locate the battery socket (see page 77).

NOTICE: If you pry the battery out of its socket with a blunt object, be careful not to touch the system board with the object. Ensure that the object is inserted between the battery and the socket before you attempt to pry out the battery. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.

4. Remove the battery by carefully prying it out of its socket with your fingers or with a blunt, nonconducting object such as a plastic screwdriver.
5. Insert the new battery (CR2032) into the socket with the side labeled "+" facing up, and snap the battery into place.
6. Close the computer cover.



NOTICE: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

7 Connect your computer and devices to electrical outlets, and turn them on.

8 Enter system setup (see page 127) and restore the settings you recorded in step 1.

9 Properly dispose of the old battery. See the *Product Information Guide* for battery disposal information.

Closing the Computer Cover

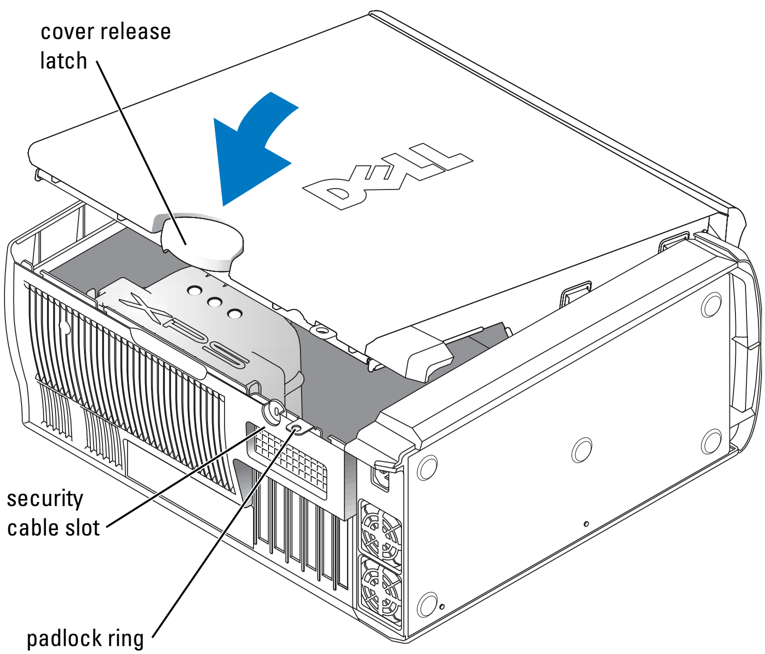
1 Ensure that all cables are connected, and fold cables out of the way.

2 Ensure that no tools or extra parts are left inside the computer.

3 Pivot the cover down and into position.

4 Press down on the cover to close it.

5 Once the cover is closed, slide the release latch to the right until the latch clicks into place.



6 If you are using a padlock to secure your computer, install the padlock.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

7 Connect your computer and devices to electrical outlets, and turn them on.

6

Appendix

Specifications

Processor	
Processor type	Intel® Pentium® 4 with HT Technology and dual-core processing **NOTE:** Not all Pentium 4 processors support Hyper-Threading technology and/or dual-core processing.
Cache	512 KB, 1 MB, or 2 MB

Memory	
Type	533- and 667-MHz DDR2 unbuffered SDRAM
Memory connectors	four
Memory capacities	256 MB, 512 MB, 1 GB, or 2 GB non-ECC
Minimum memory	512 MB
Maximum memory	8 GB **NOTE:** See "Addressing Memory With 4-GB Configurations" on page 79 to verify the amount of memory available to the operating system.
BIOS address	F0000h

Computer Information	
Chipset	Intel 955X Express
DMA channels	five
Interrupt levels	24
BIOS chip (NVRAM)	4 Mb
NIC	integrated network interface capable of 10/100/1000 communication.
System clock	800- or 1066-MHz data rate (depending on your processor)

Video	
Type	PCI Express

Expansion Bus	
Bus type	PCI 32-bit PCI Express x1, x4, and x16
Bus speed	PCI: 33 MHz
	PCI Express: 2.5 Gb/s raw bandwidth (bidirectional) per lane
Bus throughput	PCI Express: x1 slot bidirectional speed — 500 MB/s x4 slot bidirectional speed — 2 GB/s x16 slot bidirectional speed — 8 GB/s
PCI	
connector	three
connector size	120 pins
connector data width (maximum)	32 bits
PCI Express	
connector	one x1
connector size	36 pins
connector data width (maximum)	1 PCI Express lane
PCI Express	
connector	one x4
connector size	98 pins
connector data width (maximum)	4 PCI Express lanes
PCI Express	
connector	one x16
connector size	164 pins
connector data width (maximum)	16 PCI Express lanes

Drives	
Externally accessible:	one 3.5-inch drive bays
	three 5.25-inch drive bays
Available devices	Serial ATA drive, floppy drive, memory devices, CD drive, CD-RW drive, DVD drive, DVD-RW drive, and DVD and CD-RW combo drive
Internally accessible:	three bays for 1-inch high hard drives

Connectors	
External connectors:	
IEEE 1394	front and back-panel 6-pin serial connectors
Video	15-pin connector
DVI	28-pin connector
Network adapter	RJ45 connector
PS/2 (keyboard and mouse)	two 6-pin mini-DIN
USB	two front-panel, five back-panel, and one internal USB 2.0–compliant connectors
System board connectors:	
Primary IDE drive	40-pin connector on PCI local bus
Serial ATA	four 7-pin connectors
Floppy drive	34-pin connector
Fan	three 5-pin connectors
PCI	three 120-pin connectors
PCI Express x1	36-pin connector
PCI Express x4	98-pin connector
PCI Express x16	164-pin connector

Controls and Lights	
Power control	push button
Power light	green light — Blinking green in sleep state; solid green for power-on state.
	amber light — Blinking amber indicates a problem with an installed device; solid amber indicates an internal power problem (see "Power Problems" on page 48).
Hard-drive access light	green

Controls and Lights *(continued)*	
Link integrity light (on integrated network adapter)	green light — A good connection exists between a 10-Mbps network and the computer. orange light — A good connection exists between a 100-Mbps network and the computer. yellow light — A good connection exists between a 1-GB (or 1000-Mbps) network and the computer. off (no light) — The computer is not detecting a physical connection to the network.
Activity light (on integrated network adapter)	yellow blinking light when there is activity on the network. If there is not any network activity, the light will be off.
Diagnostic lights	four lights on the front panel (See "Diagnostic Lights" on page 55.)
Standby power light	AUXPWR on the system board
Case backlight	color options: off (no light), ruby, emerald, sapphire (default), amber, amethyst, topaz, diamond (See "Changing the Front-Panel Light Color" on page 13.)

Power	
460-W DC power supply:	
Wattage	460 W
Heat dissipation	931.2 BTU/hr
Voltage (see the safety instructions located in the *Product Information Guide* for important voltage setting information)	fixed-voltage power supply — 110 V at 50/60 Hz manual selection and auto-sensing power supplies — 90 to 135 V at 50/60 Hz; 180 to 265 V at 50/60 Hz; 100 V at 50/60 Hz for Japanese computers
650-W DC power supply:	
Wattage	650 W
Heat dissipation	1000 BTU/hr
Voltage (see the safety instructions located in the *Product Information Guide* for important voltage setting information)	fixed-voltage power supply — 110 V at 50/60 Hz manual selection and auto-sensing power supplies — 90 to 135 V at 50/60 Hz; 180 to 265 V at 50/60 Hz; 100 V at 50/60 Hz for Japanese computers
Backup battery	3-V CR2032 lithium coin cell

Physical	
Height	49.1 cm (19.3 inches)
Width	22.2 cm (8.7 inches)
Depth	48.8 cm (19.2 inches)
Weight	19 kg (42 lb)

Environmental	
Temperature:	
Operating	10° to 35°C (50° to 95°F) **NOTE:** At 35°C (95°F), the maximum operating altitude is 914 m (3000 ft).
Storage	–40° to 65°C (–40° to 149°F)
Relative humidity	20% to 80% (noncondensing)
Maximum vibration:	
Operating	0.25 G at 3 to 200 Hz at 0.5 octave/min
Storage	0.5 G at 3 to 200 Hz at 1 octave/min
Maximum shock:	
Operating	bottom half-sine pulse with a change in velocity of 20 inches/sec (50.8 cm/sec)
Storage	27-G faired square wave with a velocity change of 200 inches/sec (508 cm/sec)
Altitude:	
Operating	–15.2 to 3048 m (–50 to 10,000 ft)
Storage	–15.2 to 10,668 m (–50 to 35,000 ft)

System Setup

Overview

Use system setup as follows:

- To change the system configuration information after you add, change, or remove any hardware in your computer
- To set or change a user-selectable option such as the user password
- To read the current amount of memory or set the type of hard drive installed

Before you use system setup, it is recommended that you write down the system setup screen information for future reference.

NOTICE: Unless you are an expert computer user, do not change the settings for this program. Certain changes can make your computer work incorrectly.

Entering System Setup

1. Turn on (or restart) your computer.
2. When the blue DELL™ logo appears, press <F2> immediately.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop. Then shut down your computer (see page 69) and try again.

System Setup Screens

The system setup screen displays current or changeable configuration information for your computer. Information on the screen is divided into three areas: the options list, the active options field, and key functions.

<table>
<tr>
<td rowspan="2">Options List — This field appears on the left side of the system setup window. The field is a scrollable list containing features that define the configuration of your computer, including installed hardware, power conservation, and security features.

Scroll up and down the list with the up- and down-arrow keys. As an option is highlighted, the Option Field displays more information about that option and the option's current and available settings.</td>
<td>Option Field — This field contains information about each option. In this field you can view your current settings and make changes to your settings.

Press the left- and right-arrow keys to highlight an option. Press <Enter> to make that selection active.</td>
</tr>
<tr>
<td>Key Functions — This field appears below the Option Field and lists keys and their functions within the active system setup field.</td>
</tr>
</table>

System Setup Options

NOTE: Depending on your computer and installed devices, the items listed in this section may not appear, or may not appear exactly as listed.

System	
System Info	Lists system information such as the computer name, the BIOS version number and date, system tags, and other system-specific information.
CPU Info	Identifies whether the computer's processor supports Hyper-Threading and lists the processor bus speed, processor ID, clock speed, and L2 cache.
Memory Info	Indicates amount of installed memory, memory speed, channel mode (dual or single), and type of memory installed.
PCI Info	Indicates the expansion card type by slot location.
Date/Time	Displays current date and time settings.
Boot Sequence	The computer attempts to boot from the sequence of devices specified in this list. **NOTE:** If you insert a boot device and restart the computer, this option appears in the system setup menu. To boot from a USB memory device, select the USB device and move it so it becomes the first device in the list.
Drives	
Diskette Drive	Identifies and defines the floppy drive attached to the DSKT connector on the system board as **Off**, **USB**, **Internal**, or **Read Only**.
Drives 0 through 5	Identifies the drives attached to the SATA or PRI IDE connectors on the system board, and lists the capacity for hard drives.
SATA Operation	Identifies and defines the SATA controller settings for RAID. You can set the SATA controller to **RAID Autodetect/AHCI, RAID Autodetect/ATA**, or **RAID On**.
Smart Reporting	Determines whether hard-drive errors for internal drives are reported during system startup. **Off** does not report errors. **On** reports errors.
Onboard Devices	
Integrated NIC	Enables or disables the integrated NIC controller. **Off** disables the controller. **On** enables the controller. **NOTE:** PXE and RPL is required only if you are booting to an operating system on another system; not if you are booting to an operating system on a hard drive in this system.
USB Controller	(Default **On**) Enables or disables the internal USB controller. **Off** disables the controller. **On** enables the controller. **No Boot** enables the controller but disables the ability to boot from a USB device.
1394 Controller	Enables or disables the IEEE 1394 controller.

PS/2 Mouse Port	Enables or disables the onboard PS/2-compatible mouse controller.
Video	
Primary Video	This setting specifies which video controller is primary when two video controllers are present on the computer.
Performance	
Front LED Color	This setting allows you to change the front-panel back lighting to the following colors: off, ruby, emerald, amber, sapphire, amethyst, topaz, and diamond.
Hyper-Threading	If your computer's processor supports Hyper-Threading, this option appears in the **Options List**.
HDD Acoustic Mode	• **Bypass** — Your computer does not test or change the current acoustics mode setting. • **Quiet** (default) — The hard drive operates at its most quiet setting. • **Suggested** — The hard drive operates at the level suggested by the drive manufacturer. • **Performance** — The hard drive operates at its maximum speed. **NOTE:** Switching to performance mode may cause the drive to be noisier, but its performance is not affected. **NOTE:** Changing the acoustics setting does not alter your hard drive image.
Security	This section displays available system security options.
DEP (Execute Disable)	• **Opt-In** (default) — DEP is enabled by default on computers with NX-capable processors. Only Windows system binaries are covered by DEP with this option. Applications may enable DEP protection through creating an application compatibility shim and installing that shim with the application. • **Opt-Out** — DEP is enabled for all processes. Users can manually create exceptions for specific applications in System Properties, or IT Pros and ISVs can use the Application Compatibility Toolkit to opt-out. • **Always On** — Full DEP coverage with no exceptions. • **Always Off** — No user-mode DEP coverage. Drivers and the Widows core kernel binaries are covered by DEP, but no other binaries are included in the set of covered applications.
Admin Password	This option provides restricted access to the computer's system setup program in the same way that access to the system can be restricted with the **System Password** option.
System Password	Displays the current status of the system's password security feature and allows a new system password to be assigned and verified.
Password Changes	This option locks the system password field with the setup password. When the field is locked, you can no longer disable password security by pressing <Ctrl><Enter> when the computer starts.

Power Management	
AC Recovery	Determines what happens when AC power is restored to the computer.
Auto Power On	Sets the computer to automatically turn on. Choices are **every day** or every **Monday through Friday**. The default setting is **Off**. This feature does not work if you turn off your computer using a power strip or surge protector.
Auto Power Time	Sets time to automatically turn on the computer. Time is kept in a 24-hour format (*hours:minutes*). Change the start-up time by pressing the right- or left-arrow key to increase or decrease the numbers, or type numbers in both the date and time fields. This feature does not work if you turn off your computer using a power strip or surge protector.
Low Power Mode	When **Low Power Mode** is selected, remote wakeup events no longer power up from **Hibernate** or **Off**.
Remote Wake Up	This option allows the computer to power up when a NIC or Remote Wakeup-capable modem receives a wake up signal. **On** is the default setting. **On w/ Boot to NIC** allows the computer to attempt to boot from a network prior to using the boot sequence. **NOTE:** Normally, the system can be powered up remotely from suspend mode, hibernate mode, or when powered off. When **Low Power Mode** (in the **Power Management** menu) is enabled, the computer can only be powered up remotely from **Suspend**.
Suspend Mode	The options are **S1**, a suspend state where the computer is running in a low-power mode, and **S3**, a standby state where the power is reduced or turned off for most components, however, system memory remains active.
Maintenance	
Load Defaults	This setting restores the computer's factory-installed default settings.
Event Log	Displays the system event log.
POST Behavior	
Fastboot	When set to **On** (default), your computer starts more quickly because it skips certain configurations and tests.
Numlock Key	This option involves the rightmost bank of keys on your keyboard. When set to **On** (default), this option activates the numeric and mathematical features shown at the top of each key. When set to **Off**, this option activates the cursor-control functions labeled on the bottom of each key.

POST Hotkeys	This option allows you to specify the function keys to display on the screen when the computer starts.
Keyboard Errors	This option disables or enables keyboard error reporting when the computer starts.

Boot Sequence

This feature allows you to change the boot sequence for devices.

Option Settings

- **Diskette Drive —** The computer attempts to boot from the floppy drive. If the floppy disk in the drive is not bootable, if no floppy disk is in the drive, or if there is no floppy drive installed in the computer, the computer attempts to boot from the next bootable device in the boot sequence.
- **Hard Drive** — The computer attempts to boot from the primary hard drive. If no operating system is on the drive, the computer attempts to boot from the next bootable device in the boot sequence.
- **CD Drive** — The computer attempts to boot from the CD drive. If no CD is in the drive, or if the CD has no operating system, the computer attempts to boot from the next bootable device in the boot sequence.
- **USB Flash Device —** Insert the memory device into a USB port and restart the computer. When `F12 = Boot Menu` appears in the upper-right corner of the screen, press <F12>. The BIOS detects the device and adds the USB flash option to the boot menu.

NOTE: To boot to a USB device, the device must be bootable. To make sure that your device is bootable, check the device documentation.

NOTE: An error message is generated only after the computer attempts to boot from every device in the boot sequence and no operating system is found.

Changing Boot Sequence for the Current Boot

You can use this feature, for example, to tell the computer to boot from the CD drive so that you can run the Dell Diagnostics on the *Dell Dimension ResourceCD*, but you want the computer to boot from the hard drive when the diagnostic tests are complete. You can also use this feature to restart your computer to a USB device such as a floppy drive, memory key, or CD-RW drive.

NOTE: If you are booting to a USB floppy drive, you must first set the floppy drive to **OFF** in system setup (see page 127).

1. If you are booting to a USB device, connect the USB device to a USB connector (see page 71).
2. Turn on (or restart) your computer.

3 When `F2 = Setup, F12 = Boot Menu` appears in the upper-right corner of the screen, press <F12>.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then shut down your computer (see page 69) and try again.

   The **Boot Device Menu** appears, listing all available boot devices. Each device has a number next to it.

4 At the bottom of the menu, enter the number of the device that is to be used for the current boot only.

   For example, if you are booting to a USB memory key, highlight **USB Flash Device** and press <Enter>.

NOTE: To boot to a USB device, the device must be bootable. To make sure that your device is bootable, check the device documentation.

Changing Boot Sequence for Future Boots

1 Enter system setup (see page 128).

2 Use the arrow keys to highlight the **Boot Sequence** menu option and press <Enter> to access the menu.

NOTE: Write down your current boot sequence in case you want to restore it.

3 Press the up- and down-arrow keys to move through the list of devices.

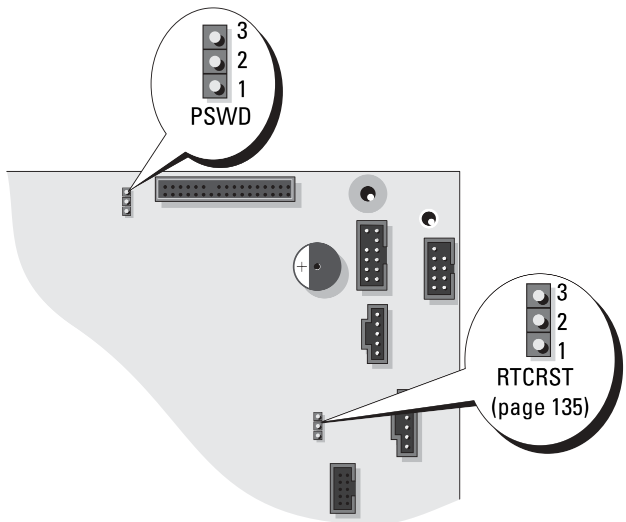
4 Press the spacebar to enable or disable a device (enabled devices have a checkmark).

5 Press plus (+) or minus (–) to move a selected device up or down the list.

Clearing Forgotten Passwords

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1 Follow the procedures in "Before You Begin" on page 69.



2 Locate the 3-pin password jumper (PSWD) on the system board (see page 77), and attach the jumper plug to pins 2 and 3 to clear the password.

NOTE: When you receive your computer, the jumper plug is attached to pins 1 and 2.

3 Close the computer cover.

4 Connect your computer and monitor to electrical outlets, and turn them on.

5 After the Microsoft® Windows® desktop appears on your computer, shut down the computer (see page 69).

6 Turn off the monitor and disconnect it from the electrical outlet.

7 Disconnect the computer power cable from the electrical outlet, and press the power button to ground the system board.

8 Open the computer cover (see page 75).

9 Locate the 3-pin password jumper on the system board (see page 77) and attach the jumper to pins 1 and 2 to reenable the password feature.

10 Replace the computer cover (see page 121).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

11 Connect your computer and devices to electrical outlets, and turn them on.

Clearing CMOS Settings

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

1 Follow the procedures in "Before You Begin" on page 69.

2 Reset the current CMOS settings:

   a Locate the 3-pin CMOS jumper (CLR CMOS) on the system board (see page 77).

   b Remove the jumper plug from pins 1 and 2.

   c Place the jumper plug on pins 2 and 3 and wait approximately 5 seconds.

   d Replace the jumper plug on pins 1 and 2.

3 Close the computer cover (see page 121).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

4 Connect your computer and devices to electrical outlets, and turn them on.

Cleaning Your Computer

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in the *Product Information Guide*.

Computer, Keyboard, and Monitor

CAUTION: Before you clean your computer, disconnect the computer from the electrical outlet. Clean your computer with a soft cloth dampened with water. Do not use liquid or aerosol cleaners, which may contain flammable substances.

- Use a vacuum cleaner with a brush attachment to gently remove dust from the slots and holes on your computer and from between the keys on the keyboard.

NOTICE: Do not wipe the display screen with any soap or alcohol solution. Doing so may damage the antiglare coating.

- To clean your monitor screen, lightly dampen a soft, clean cloth with water. If possible, use a special screen-cleaning tissue or solution suitable for the monitor's antistatic coating.
- Wipe the keyboard, computer, and plastic part of the monitor with a soft cleaning cloth moistened with a solution of three parts water and one part dishwashing detergent.

  Do not soak the cloth or let water drip inside your computer or keyboard.

Mouse

If your screen cursor skips or moves abnormally, clean the mouse. To clean a non-optical mouse:

1 Turn the retainer ring on the underside of your mouse counterclockwise, and then remove the ball.
2 Wipe the ball with a clean, lint-free cloth.
3 Blow carefully into the ball cage to dislodge dust and lint.
4 If the rollers inside the ball cage are dirty, clean the rollers with a cotton swab moistened lightly with isopropyl alcohol.
5 Recenter the rollers in their channels if they are misaligned. Ensure that fluff from the swab is not left on the rollers.
6 Replace the ball and retainer ring, and turn the retainer ring clockwise until it clicks into place.

Floppy Drive

NOTICE: Do not attempt to clean drive heads with a swab. You might accidentally misalign the heads, which prevents the drive from operating.

Clean your floppy drive using a commercially available cleaning kit. These kits contain pretreated floppy disks to remove contaminants that accumulate during normal operation.

CDs and DVDs

NOTICE: Always use compressed air to clean the lens in the CD/DVD drive, and follow the instructions that come with the compressed air. Never touch the lens in the drive.

If you notice problems, such as skipping, with the playback quality of your CDs or DVDs, try cleaning the discs.

1 Hold the disc by its outer edge. You can also touch the inside edge of the center hole.

NOTICE: To prevent damaging the surface, do not wipe in a circular motion around the disc.

2 With a soft, lint-free cloth, gently wipe the bottom of the disc (the unlabeled side) in a straight line from the center to the outer edge of the disc.

   For stubborn dirt, try using water or a diluted solution of water and mild soap. You can also purchase commercial products that clean discs and provide some protection from dust, fingerprints, and scratches. Cleaning products for CDs are safe to use on DVDs.

Dell Technical Support Policy (U.S. Only)

Technician-assisted technical support requires the cooperation and participation of the customer in the troubleshooting process and provides for restoration of the operating system, software programs, and hardware drivers to the original default configuration as shipped from Dell, as well as the verification of appropriate functionality of the computer and all Dell-installed hardware. In addition to this technician-assisted technical support, online technical support is available at **support.dell.com**. Additional technical support options may be available for purchase.

Dell provides limited technical support for the computer and any "Dell-installed" software and peripherals[1]. Support for third-party software and peripherals is provided by the original manufacturer, including those purchased and/or installed through Dell Software and Peripherals, Readyware, and Custom Factory Integration[2].

[1] Repair services are provided pursuant to the terms and conditions of your limited warranty and any optional support service contract purchased with the computer.

[2] All Dell-standard components included in a Custom Factory Integration (CFI) project are covered by the standard Dell limited warranty for your computer. However, Dell also extends a parts replacement program to cover all nonstandard, third-party hardware components integrated through CFI for the duration of the computer's service contract.

Definition of "Dell-Installed" Software and Peripherals

Dell-installed software includes the operating system and some of the software programs that are installed on the computer during the manufacturing process (Microsoft® Office, Norton Antivirus, and so on).

Dell-installed peripherals include any internal expansion cards, or Dell-branded module bay or PC Card accessories. In addition, any Dell-branded monitors, keyboards, mice, speakers, microphones for telephonic modems, docking stations/port replicators, networking products, and all associated cabling are included.

Definition of "Third-Party" Software and Peripherals

Third-party software and peripherals include any peripheral, accessory, or software program sold by Dell not under the Dell brand (printers, scanners, cameras, games, and so on). Support for all third-party software and peripherals is provided by the original manufacturer of the product.

FCC Notices (U.S. Only)

Most Dell computer systems are classified by the Federal Communications Commission (FCC) as Class B digital devices. To determine which classification applies to your computer system, examine all FCC registration labels located on the bottom, side, or back panel of your computer, on card-mounting brackets, and on the cards themselves. If any one of the labels carries a Class

A rating, your entire system is considered to be a Class A digital device. If *all* labels carry an FCC Class B rating as distinguished by either an FCC ID number or the FCC logo, (FC), your system is considered to be a Class B digital device.

Once you have determined your system's FCC classification, read the appropriate FCC notice. Note that FCC regulations provide that changes or modifications not expressly approved by Dell could void your authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

Class A

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Class B

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

FCC Identification Information

The following information is provided on the device or devices covered in this document in compliance with FCC regulations:

- Model number: WHL

  Company name:

  Dell Inc.
  One Dell Way
  Round Rock, Texas 78682 USA
  512-338-4400

Contacting Dell

To contact Dell electronically, you can access the following websites:

- **www.dell.com**
- **support.dell.com** (technical support)
- **premiersupport.dell.com** (technical support for educational, government, healthcare, and medium/large business customers, including Premier, Platinum, and Gold customers)

For specific web addresses for your country, find the appropriate country section in the table below.

NOTE: Toll-free numbers are for use within the country for which they are listed.

NOTE: In certain countries, technical support specific to Dell Inspiron™ XPS computers is available at a separate telephone number listed for participating countries. If you do not see a telephone number listed that is specific for Inspiron XPS computers, you may contact Dell through the technical support number listed and your call will be routed appropriately.

When you need to contact Dell, use the electronic addresses, telephone numbers, and codes provided in the following table. If you need assistance in determining which codes to use, contact a local or an international operator.

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Anguilla	General Support	toll-free: 800-335-0031
Antigua and Barbuda	General Support	1-800-805-5924

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Argentina (Buenos Aires)	Website: **www.dell.com.ar**	
International Access Code: **00**	E-mail: us_latin_services@dell.com	
Country Code: **54**	E-mail for desktop and portable computers: la-techsupport@dell.com	
City Code: **11**	E-mail for servers and EMC® storage products: la_enterprise@dell.com	
	Customer Care	toll-free: 0-800-444-0730
	Tech Support	toll-free: 0-800-444-0733
	Tech Support Services	toll-free: 0-800-444-0724
	Sales	0-810-444-3355
Aruba	General Support	toll-free: 800-1578
Australia (Sydney)	E-mail (Australia): au_tech_support@dell.com	
International Access Code: **0011**	E-mail (New Zealand): nz_tech_support@dell.com	
Country Code: **61**	Home and Small Business	1-300-655-533
City Code: **2**	Government and Business	toll-free: 1-800-633-559
	Preferred Accounts Division (PAD)	toll-free: 1-800-060-889
	Customer Care	toll-free: 1-800-819-339
	Technical Support (portables and desktops)	toll-free: 1-300-655-533
	Technical Support (servers and workstations)	toll-free: 1-800-733-314
	Corporate Sales	toll-free: 1-800-808-385
	Transaction Sales	toll-free: 1-800-808-312
	Fax	toll-free: 1-800-818-341

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Austria (Vienna)	Website: **support.euro.dell.com**	
International Access Code: **900**	E-mail: tech_support_central_europe@dell.com	
Country Code: **43**	Home/Small Business Sales	0820 240 530 00
City Code: **1**	Home/Small Business Fax	0820 240 530 49
	Home/Small Business Customer Care	0820 240 530 14
	Preferred Accounts/Corporate Customer Care	0820 240 530 16
	Technical Support for Inspiron XPS computers only	0820 240 530 81
	Home/Small Business Technical Support for all other Dell computers	0820 240 530 14
	Preferred Accounts/Corporate Technical Support	0660 8779
	Switchboard	0820 240 530 00
Bahamas	General Support	toll-free: 1-866-278-6818
Barbados	General Support	1-800-534-3066
Belgium (Brussels)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail for French-speaking Customers: **support.euro.dell.com/be/fr/emaildell/**	
Country Code: **32**	Technical Support for Inspiron XPS computers only	02 481 92 96
City Code: **2**	Technical Support for all other Dell computers	02 481 92 88
	Technical Support Fax	02 481 92 95
	Customer Care	02 713 15 .65
	Corporate Sales	02 481 91 00
	Fax	02 481 92 99
	Switchboard	02 481 91 00
Bermuda	General Support	1-800-342-0671
Bolivia	General Support	toll-free: 800-10-0238
Brazil	Website: **www.dell.com/br**	
International Access Code: **00**	Customer Support, Technical Support	0800 90 3355
Country Code: **55**	Technical Support Fax	51 481 5470
City Code: **51**	Customer Care Fax	51 481 5480
	Sales	0800 90 3390
British Virgin Islands	General Support	toll-free: 1-866-278-6820

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Brunei	Customer Technical Support (Penang, Malaysia)	604 633 4966
Country Code: **673**	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales (Penang, Malaysia)	604 633 4955
Canada (North York, Ontario)	Online Order Status: **www.dell.ca/ostatus**	
International Access Code: **011**	AutoTech (automated technical support)	toll-free: 1-800-247-9362
	Customer Care (Home Sales/Small Business)	toll-free: 1-800-847-4096
	Customer Care (med./large business, government)	toll-free: 1-800-326-9463
	Technical Support (Home Sales/Small Business)	toll-free: 1-800-847-4096
	Technical Support (med./large bus., government)	toll-free: 1-800-387-5757
	Technical Support (printers, projectors, televisions, handhelds, digital jukebox, and wireless)	1-877-335-5767
	Sales (Home Sales/Small Business)	toll-free: 1-800-387-5752
	Sales (med./large bus., government)	toll-free: 1-800-387-5755
	Spare Parts Sales & Extended Service Sales	1 866 440 3355
Cayman Islands	General Support	1-800-805-7541
Chile (Santiago)	Sales, Customer Support, and Technical Support	toll-free: 1230-020-4823
Country Code: **56**		
City Code: **2**		

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
China (Xiamen)	Technical Support website: **support.dell.com.cn**	
Country Code: **86**	Technical Support E-mail: cn_support@dell.com	
City Code: **592**	Customer Care E-mail: customer_cn@dell.com	
	Technical Support Fax	592 818 1350
	Technical Support (Dell™ Dimension™ and Inspiron)	toll-free: 800 858 2969
	Technical Support (OptiPlex™, Latitude™, and Dell Precision™)	toll-free: 800 858 0950
	Technical Support (servers and storage)	toll-free: 800 858 0960
	Technical Support (projectors, PDAs, switches, routers, and so on)	toll-free: 800 858 2920
	Technical Support (printers)	toll-free: 800 858 2311
	Customer Care	toll-free: 800 858 2060
	Customer Care Fax	592 818 1308
	Home and Small Business	toll-free: 800 858 2222
	Preferred Accounts Division	toll-free: 800 858 2557
	Large Corporate Accounts GCP	toll-free: 800 858 2055
	Large Corporate Accounts Key Accounts	toll-free: 800 858 2628
	Large Corporate Accounts North	toll-free: 800 858 2999
	Large Corporate Accounts North Government and Education	toll-free: 800 858 2955
	Large Corporate Accounts East	toll-free: 800 858 2020
	Large Corporate Accounts East Government and Education	toll-free: 800 858 2669
	Large Corporate Accounts Queue Team	toll-free: 800 858 2572
	Large Corporate Accounts South	toll-free: 800 858 2355
	Large Corporate Accounts West	toll-free: 800 858 2811
	Large Corporate Accounts Spare Parts	toll-free: 800 858 2621
Colombia	General Support	980-9-15-3978
Costa Rica	General Support	0800-012-0435

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Czech Republic (Prague)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: czech_dell@dell.com	
Country Code: **420**	Technical Support	22537 2727
	Customer Care	22537 2707
	Fax	22537 2714
	Tech Fax	22537 2728
	Switchboard	22537 2711
Denmark (Copenhagen)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/dk/da/emaildell/**	
Country Code: **45**	Technical Support for Inspiron XPS computers only	7010 0074
	Technical Support for all other Dell computers	7023 0182
	Customer Care (Relational)	7023 0184
	Home/Small Business Customer Care	3287 5505
	Switchboard (Relational)	3287 1200
	Switchboard Fax (Relational)	3287 1201
	Switchboard (Home/Small Business)	3287 5000
	Switchboard Fax (Home/Small Business)	3287 5001
Dominica	General Support	toll-free: 1-866-278-6821
Dominican Republic	General Support	1-800-148-0530
Ecuador	General Support	toll-free: 999-119
El Salvador	General Support	01-899-753-0777
Finland (Helsinki)	Website: **support.euro.dell.com**	
International Access Code: **990**	E-mail: **support.euro.dell.com/fi/fi/emaildell/**	
Country Code: **358**	Technical Support	09 253 313 60
City Code: **9**	Customer Care	09 253 313 38
	Fax	09 253 313 99
	Switchboard	09 253 313 00

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
France (Paris) (Montpellier)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/fr/fr/emaildell/**	
Country Code: **33**	**Home and Small Business**	
City Codes: **(1) (4)**	Technical Support for Inspiron XPS computers only	0825 387 129
	Technical Support for all other Dell computers	0825 387 270
	Customer Care	0825 823 833
	Switchboard	0825 004 700
	Switchboard (calls from outside of France)	04 99 75 40 00
	Sales	0825 004 700
	Fax	0825 004 701
	Fax (calls from outside of France)	04 99 75 40 01
	Corporate	
	Technical Support	0825 004 719
	Customer Care	0825 338 339
	Switchboard	01 55 94 71 00
	Sales	01 55 94 71 00
	Fax	01 55 94 71 01
Germany (Langen)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: tech_support_central_europe@dell.com	
Country Code: **49**	Technical Support for Inspiron XPS computers only	06103 766-7222
City Code: **6103**	Technical Support for all other Dell computers	06103 766-7200
	Home/Small Business Customer Care	0180-5-224400
	Global Segment Customer Care	06103 766-9570
	Preferred Accounts Customer Care	06103 766-9420
	Large Accounts Customer Care	06103 766-9560
	Public Accounts Customer Care	06103 766-9555
	Switchboard	06103 766-7000

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Greece	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/gr/en/emaildell/**	
Country Code: **30**	Technical Support	00800-44 14 95 18
	Gold Service Technical Support	00800-44 14 00 83
	Switchboard	2108129810
	Gold Service Switchboard	2108129811
	Sales	2108129800
	Fax	2108129812
Grenada	General Support	toll-free: 1-866-540-3355
Guatemala	General Support	1-800-999-0136
Guyana	General Support	toll-free: 1-877-270-4609
Hong Kong	Website: **support.ap.dell.com**	
International Access Code: **001**	Technical Support E-mail: apsupport@dell.com	
Country Code: **852**	Technical Support (Dimension and Inspiron)	2969 3188
	Technical Support (OptiPlex, Latitude, and Dell Precision)	2969 3191
	Technical Support (PowerApp™, PowerEdge™, PowerConnect™, and PowerVault™)	2969 3196
	Customer Care	3416 0910
	Large Corporate Accounts	3416 0907
	Global Customer Programs	3416 0908
	Medium Business Division	3416 0912
	Home and Small Business Division	2969 3105
India	Technical Support	1600 33 8045
	Sales (Large Corporate Accounts)	1600 33 8044
	Sales (Home and Small Business)	1600 33 8046

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Ireland (Cherrywood)	Website: **support.euro.dell.com**	
International Access Code: **16**	E-mail: dell_direct_support@dell.com	
Country Code: **353**	Technical Support for Inspiron XPS computers only	1850 200 722
City Code: **1**	Technical Support for all other Dell computers	1850 543 543
	U.K. Technical Support (dial within U.K. only)	0870 908 0800
	Home User Customer Care	01 204 4014
	Small Business Customer Care	01 204 4014
	U.K. Customer Care (dial within U.K. only)	0870 906 0010
	Corporate Customer Care	1850 200 982
	Corporate Customer Care (dial within U.K. only)	0870 907 4499
	Ireland Sales	01 204 4444
	U.K. Sales (dial within U.K. only)	0870 907 4000
	Fax/Sales Fax	01 204 0103
	Switchboard	01 204 4444
Italy (Milan)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/it/it/emaildell/**	
Country Code: **39**	**Home and Small Business**	
City Code: **02**	Technical Support	02 577 826 90
	Customer Care	02 696 821 14
	Fax	02 696 821 13
	Switchboard	02 696 821 12
	Corporate	
	Technical Support	02 577 826 90
	Customer Care	02 577 825 55
	Fax	02 575 035 30
	Switchboard	02 577 821
Jamaica	General Support (dial from within Jamaica only)	1-800-682-3639

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Japan (Kawasaki)	Website: **support.jp.dell.com**	
International Access Code: **001**	Technical Support (servers)	toll-free: 0120-198-498
Country Code: **81**	Technical Support outside of Japan (servers)	81-44-556-4162
City Code: **44**	Technical Support (Dimension and Inspiron)	toll-free: 0120-198-226
	Technical Support outside of Japan (Dimension and Inspiron)	81-44-520-1435
	Technical Support (Dell Precision, OptiPlex, and Latitude)	toll-free:0120-198-433
	Technical Support outside of Japan (Dell Precision, OptiPlex, and Latitude)	81-44-556-3894
	Technical Support (PDAs, projectors, printers, routers)	toll-free: 0120-981-690
	Technical Support outside of Japan (PDAs, projectors, printers, routers)	81-44-556-3468
	Faxbox Service	044-556-3490
	24-Hour Automated Order Service	044-556-3801
	Customer Care	044-556-4240
	Business Sales Division (up to 400 employees)	044-556-1465
	Preferred Accounts Division Sales (over 400 employees)	044-556-3433
	Large Corporate Accounts Sales (over 3500 employees)	044-556-3430
	Public Sales (government agencies, educational institutions, and medical institutions)	044-556-1469
	Global Segment Japan	044-556-3469
	Individual User	044-556-1760
	Switchboard	044-556-4300
Korea (Seoul)	Technical Support	toll-free: 080-200-3800
International Access Code: **001**	Sales	toll-free: 080-200-3600
Country Code: **82**	Customer Service (Penang, Malaysia)	604 633 4949
City Code: **2**	Fax	2194-6202
	Switchboard	2194-6000
	Technical Support (Electronics and Accessories)	toll-free: 080-200-3801

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Latin America	Customer Technical Support (Austin, Texas, U.S.A.)	512 728-4093
	Customer Service (Austin, Texas, U.S.A.)	512 728-3619
	Fax (Technical Support and Customer Service) (Austin, Texas, U.S.A.)	512 728-3883
	Sales (Austin, Texas, U.S.A.)	512 728-4397
	SalesFax (Austin, Texas, U.S.A.)	512 728-4600
		or 512 728-3772
Luxembourg	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: tech_be@dell.com	
Country Code: **352**	Technical Support (Brussels, Belgium)	3420808075
	Home/Small Business Sales (Brussels, Belgium)	toll-free: 080016884
	Corporate Sales (Brussels, Belgium)	02 481 91 00
	Customer Care (Brussels, Belgium)	02 481 91 19
	Fax (Brussels, Belgium)	02 481 92 99
	Switchboard (Brussels, Belgium)	02 481 91 00
Macao	Technical Support	toll-free: 0800 105
Country Code: **853**	Customer Service (Xiamen, China)	34 160 910
	Transaction Sales (Xiamen, China)	29 693 115
Malaysia (Penang)	Website: **support.ap.dell.com**	
International Access Code: **00**	Technical Support (Dell Precision, OptiPlex, and Latitude)	toll-free: 1 800 88 0193
Country Code: **60**	Technical Support (Dimension, Inspiron, and Electronics and Accessories)	toll-free: 1 800 88 1306
City Code: **4**	Technical Support (PowerApp, PowerEdge, PowerConnect, and PowerVault)	toll-free: 1800 88 1386
	Customer Service (Penang, Malaysia)	04 633 4949
	Transaction Sales	toll-free: 1 800 888 202
	Corporate Sales	toll-free: 1 800 888 213

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Mexico	Customer Technical Support	001-877-384-8979
International Access Code: **00**		or 001-877-269-3383
Country Code: **52**	Sales	50-81-8800
		or 01-800-888-3355
	Customer Service	001-877-384-8979
		or 001-877-269-3383
	Main	50-81-8800
		or 01-800-888-3355
Montserrat	General Support	toll-free: 1-866-278-6822
Netherlands Antilles	General Support	001-800-882-1519
Netherlands (Amsterdam)	Website: **support.euro.dell.com**	
International Access Code: **00**	Technical Support for Inspiron XPS computers only	020 674 45 94
Country Code: **31**	Technical Support for all other Dell computers	020 674 45 00
City Code: **20**	Technical Support Fax	020 674 47 66
	Home/Small Business Customer Care	020 674 42 00
	Relational Customer Care	020 674 4325
	Home/Small Business Sales	020 674 55 00
	Relational Sales	020 674 50 00
	Home/Small Business Sales Fax	020 674 47 75
	Relational Sales Fax	020 674 47 50
	Switchboard	020 674 50 00
	Switchboard Fax	020 674 47 50
New Zealand	E-mail (New Zealand): nz_tech_support@dell.com	
International Access Code: **00**	E-mail (Australia): au_tech_support@dell.com	
Country Code: **64**	Technical Support (for desktop and portable computers)	toll-free: 0800 446 255
	Technical Support (for servers and workstations)	toll-free: 0800 443 563
	Home and Small Business	0800 446 255
	Government and Business	0800 444 617
	Sales	0800 441 567
	Fax	0800 441 566

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Nicaragua	General Support	001-800-220-1006
Norway (Lysaker)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/no/no/emaildell/**	
Country Code: **47**	Technical Support	671 16882
	Relational Customer Care	671 17575
	Home/Small Business Customer Care	23162298
	Switchboard	671 16800
	Fax Switchboard	671 16865
Panama	General Support	001-800-507-0962
Peru	General Support	0800-50-669
Poland (Warsaw)	Website: **support.euro.dell.com**	
International Access Code: **011**	E-mail: pl_support_tech@dell.com	
Country Code: **48**	Customer Service Phone	57 95 700
City Code: **22**	Customer Care	57 95 999
	Sales	57 95 999
	Customer Service Fax	57 95 806
	Reception Desk Fax	57 95 998
	Switchboard	57 95 999
Portugal	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/pt/en/emaildell/**	
Country Code: **351**	Technical Support	707200149
	Customer Care	800 300 413
	Sales	800 300 410 or 800 300 411 or 800 300 412 or 21 422 07 10
	Fax	21 424 01 12
Puerto Rico	General Support	1-800-805-7545
St. Kitts and Nevis	General Support	toll-free: 1-877-441-4731
St. Lucia	General Support	1-800-882-1521
St. Vincent and the Grenadines	General Support	toll-free: 1-877-270-4609

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Singapore (Singapore)	Website: **support.ap.dell.com**	
International Access Code: **005**	Technical Support (Dimension, Inspiron, and Electronics and Accessories)	toll-free: 1800 394 7430
Country Code: **65**	Technical Support (OptiPlex, Latitude, and Dell Precision)	toll-free: 1800 394 7488
	Technical Support (PowerApp, PowerEdge, PowerConnect, and PowerVault)	toll-free: 1800 394 7478
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll-free: 1 800 394 7412
	Corporate Sales	toll-free: 1 800 394 7419
Slovakia (Prague)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: czech_dell@dell.com	
Country Code: **421**	Technical Support	02 5441 5727
	Customer Care	420 22537 2707
	Fax	02 5441 8328
	Tech Fax	02 5441 8328
	Switchboard (Sales)	02 5441 7585
South Africa (Johannesburg)	Website: **support.euro.dell.com**	
International Access Code:	E-mail: dell_za_support@dell.com	
09/091	Gold Queue	011 709 7713
Country Code: **27**	Technical Support	011 709 7710
City Code: **11**	Customer Care	011 709 7707
	Sales	011 709 7700
	Fax	011 706 0495
	Switchboard	011 709 7700
Southeast Asian and Pacific Countries	Customer Technical Support, Customer Service, and Sales (Penang, Malaysia)	604 633 4810

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Spain (Madrid)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/es/es/emaildell/**	
Country Code: **34**	**Home and Small Business**	
City Code: **91**	Technical Support	902 100 130
	Customer Care	902 118 540
	Sales	902 118 541
	Switchboard	902 118 541
	Fax	902 118 539
	Corporate	
	Technical Support	902 100 130
	Customer Care	902 115 236
	Switchboard	91 722 92 00
	Fax	91 722 95 83
Sweden (Upplands Vasby)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: **support.euro.dell.com/se/sv/emaildell/**	
Country Code: **46**	Technical Support	08 590 05 199
City Code: 8	Relational Customer Care	08 590 05 642
	Home/Small Business Customer Care	08 587 70 527
	Employee Purchase Program (EPP) Support	20 140 14 44
	Technical Support Fax	08 590 05 594
	Sales	08 590 05 185
Switzerland (Geneva)	Website: **support.euro.dell.com**	
International Access Code: **00**	E-mail: Tech_support_central_Europe@dell.com	
Country Code: **41**	E-mail for French-speaking HSB and Corporate Customers: **support.euro.dell.com/ch/fr/emaildell/**	
City Code: **22**	Technical Support (Home and Small Business)	0844 811 411
	Technical Support (Corporate)	0844 822 844
	Customer Care (Home and Small Business)	0848 802 202
	Customer Care (Corporate)	0848 821 721
	Fax	022 799 01 90
	Switchboard	022 799 01 01

Country (City) **International Access Code** **Country Code** **City Code**	**Department Name or Service Area,** **Website and E-Mail Address**	**Area Codes,** **Local Numbers, and** **Toll-Free Numbers**
Taiwan	Website: **support.ap.dell.com**	
International Access Code: **002**	E-mail: ap_support@dell.com	
Country Code: **886**	Technical Support (OptiPlex, Latitude, Inspiron, Dimension, and Electronics and Accessories)	toll-free: 00801 86 1011
	Technical Support (PowerApp, PowerEdge, PowerConnect, and PowerVault)	toll-free: 00801 60 1256
	Transaction Sales	toll-free: 00801 65 1228
	Corporate Sales	toll-free: 00801 651 227
Thailand	Website: **support.ap.dell.com**	
International Access Code: **001**	Technical Support (OptiPlex, Latitude, and Dell Precision)	toll-free: 1800 0060 07
Country Code: **66**	Technical Support (PowerApp, PowerEdge, PowerConnect, and PowerVault)	toll-free: 1800 0600 09
	Customer Service (Penang, Malaysia)	604 633 4949
	Corporate Sales	toll-free: 1800 006 009
	Transaction Sales	toll-free: 1800 006 006
Trinidad/Tobago	General Support	1-800-805-8035
Turks and Caicos Islands	General Support	toll-free: 1-866-540-3355

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
U.K. (Bracknell)	Website: **support.euro.dell.com**	
International Access Code: **00**	Customer Care website: **support.euro.dell.com/uk/en/ECare/Form/Home.asp**	
Country Code: **44**		
City Code: **1344**	E-mail: dell_direct_support@dell.com	
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees])	0870 908 0500
	Technical Support (direct and general)	0870 908 0800
	Global Accounts Customer Care	01344 373 186
	Home and Small Business Customer Care	0870 906 0010
	Corporate Customer Care	01344 373 185
	Preferred Accounts (500–5000 employees) Customer Care	0870 906 0010
	Central Government Customer Care	01344 373 193
	Local Government & Education Customer Care	01344 373 199
	Health Customer Care	01344 373 194
	Home and Small Business Sales	0870 907 4000
	Corporate/Public Sector Sales	01344 860 456
	Home and Small Business Fax	0870 907 4006
Uruguay	General Support	toll-free: 000-413-598-2521

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
U.S.A. (Austin, Texas)	Automated Order-Status Service	toll-free: 1-800-433-9014
International Access Code: **011**	AutoTech (portable and desktop computers)	toll-free: 1-800-247-9362
Country Code: **1**	**Consumer** (Home and Home Office)	
	Technical Support	toll-free: 1-800-624-9896
	Customer Service	toll-free: 1-800-624-9897
	DellNet™ Service and Support	toll-free: 1-877-Dellnet (1-877-335-5638)
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Financial Services website: **www.dellfinancialservices.com**	
	Financial Services (lease/loans)	toll-free: 1-877-577-3355
	Financial Services (Dell Preferred Accounts [DPA])	toll-free: 1-800-283-2210
	Business	
	Customer Service and Technical Support	toll-free: 1-800-822-8965
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Printers and Projectors Technical Support	toll-free: 1-877-459-7298
	Public (government, education, and healthcare)	
	Customer Service and Technical Support	toll-free: 1-800-456-3355
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-234-1490
	Dell Sales	toll-free: 1-800-289-3355 or toll-free: 1-800-879-3355
	Dell Outlet Store (Dell refurbished computers)	toll-free: 1-888-798-7561
	Software and Peripherals Sales	toll-free: 1-800-671-3355
	Spare Parts Sales	toll-free: 1-800-357-3355
	Extended Service and Warranty Sales	toll-free: 1-800-247-4618
	Fax	toll-free: 1-800-727-8320
	Dell Services for the Deaf, Hard-of-Hearing, or Speech-Impaired	toll-free: 1-877-DELLTTY (1-877-335-5889)
U.S. Virgin Islands	General Support	1-877-673-3355
Venezuela	General Support	8001-3605

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